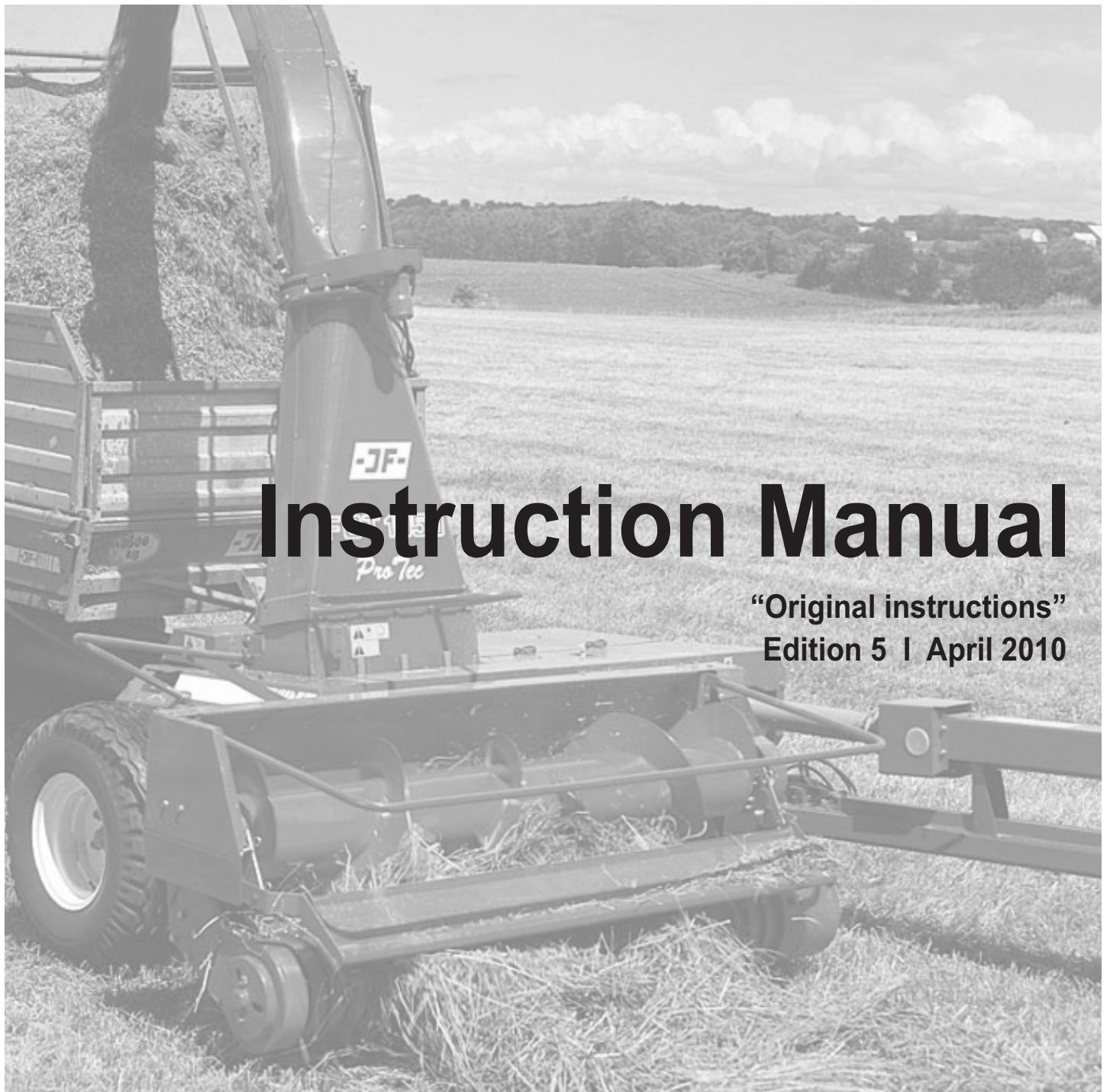


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***JF-STOLL***

# Precision Chop Forage Harvester

FCT 1050



## Instruction Manual

“Original instructions”

Edition 5 | April 2010

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

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

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

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

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

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

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

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

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

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

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

**JF-Fabriken - J. Freudendahl A/S**  
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**Dänemark / Denmark**  
**Tel. +45-74125252**

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 :

**FCT 1050**

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

**2006/42/EC**

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

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

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

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

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

**2006/42/EC**

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

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

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

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



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

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# FOREWORD

## Dear customer

We appreciate the confidence you have shown our company by investing in a JF-product and congratulate you with your new machine. Of course, it is our wish that you will experience complete satisfaction with the investment.

This instruction manual contains information about correct and safe use of the machine.

When buying the machine you will receive information about use, adjustment and maintenance.

**However, this first introduction** cannot replace a more thorough knowledge of the different tasks, functions and correct technical use of the machine.

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

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

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

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

JF-Fabriken reserves the right to make changes or improvements in the design or construction of any part without incurring the obligations to install such changes on any unit previously delivered.

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# 1. INTRODUCTION

## INTENDED USE

The precision chop forage harvester **FCT 1050 is solely constructed and manufactured for the usual work in agriculture, i.e.:** Usual work in fields where you want to cut/gather and chop green crops such as maize, grass or whole crop which are to be used for silage production intended for coarse fodder for cattle.

The machine should only be connected to a tractor which corresponds with the specifications of the product and is legal to use.

**Any use beyond this is outside the intended use. JF-Fabriken A/S is not responsible for any damage resulting from such use, the user bears that risk.**

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

Intended use also means that the prescriptions given by JF- Fabriken A/S in the instruction manual and the spare parts book are observed and that thorough agricultural knowledge and technically correct use is a matter of course.

**The precision chop forage harvester FCT 1050 should only be used, maintained and repaired by persons who, through relevant instructions and after reading the instruction manual, are familiar with the machine and, in particular, are informed of possible dangers.**

In the following there is a number of general and special safety instructions which **must** be observed altogether.

If changes are made on the machine and its construction without permission from JF-Fabriken A/S, JF-Fabriken A/S cannot be held responsible for any damage resulting from this.

## PERFORMANCE

The precision chop forage harvester FCT 1050 has a very versatile use which, with the right equipment, makes it possible to chop grass, maize and whole crops. At the same time FCT 1050 is capable of working alone or parallel with other machines.

FCT 1050 has a high capacity compared with other corresponding products as it uses the "DIRECT CUT" system. "DIRECT CUT" gives a minimum loss of power when cutting the material and thus ensures maximum utilisation of the accessible tractor power.

Capacity, however, is difficult to define and compare as, for a forage harvester, it will depend not just on which crop is being cut but also how the crop has been treated

## 1. INTRODUCTION

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before it is picked up or cut by the machine and finally which cutting length adjustment the machine is working with.

If we take a forage harvester which, in fresh, not pre-dried grass, can work 100 tons per hour, it is possible to calculate the capacity at different per cents of dry matter depending on the pre-treatment before cutting, as shown in the following table.

	Dry matter	Capacity
Dry matter	100%	18 ton/h
Wet new grass	15%	120 ton/h
Not pre-dried grass	18%	100 ton/h
Pre-dried grass – no outflow of sap from clamp silo	25%	72 ton/h
Pre-dried grass – no outflow of sap from high tower silo	33%	55 ton/h
Very pre-dried grass	50%	36 ton/h
Straw, very dry	90%	20 ton/h

It will probably surprise most people that the capacity can vary between 20 and 120 ton/h, as a result of varying water content.

In practice you want to drive the forage harvester in the highest possible tractor gear without causing frequent blockage. However, the amount of grass in the field will always vary, for instance where the mower conditioner has had to turn, change forward speed or change direction of travel. Therefore it is often appropriate either to drive with a power reserve so that the machine will not block, or to continuously adapt the driving of the forage harvester to the conditions.

The pick-up unit and the feed rollers are both secured against overloading resulting from a blockage by means of a friction clutch. The forage harvester also has a reverse function which makes it possible to remove a blockage without having to leave the tractor seat.

The intention is that the inexperienced user increases the forward speed gradually in the beginning until the pick-up is blocked; releases the blockage again by reversing and chooses a tractor gear at a suitable lower level to remove the risk of blockage.

However, it is not the intention that the clutch function of the feed rollers releases. If this happens, the clutch adjustment of the pick-up must be reduced. The same will apply if the main friction clutch between the tractor and the machine releases during normal working. If it is not the pick-up unit which is blocked, the adjustment of the machine is incorrect.

Unfortunately it has been seen before that the torque adjustment of the friction clutch of the pick-up unit has been increased to the point where it is the friction clutch between the machine and the tractor which releases frequently. The main friction clutch is not intended to release frequently but only for starting shock or when foreign matter gets into the machine. The same applies to the friction clutch for the feed rollers. The main clutch simply cannot absorb the heat which is generated during these long releases. The power transmitted at the main clutch will be at least 10 times higher than the power needed to drive the pick-up unit.



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Only the pick-up unit can be seen from the tractor and therefore it should be released first when there is a blockage. The experienced user will be able to adapt the driving of the tractor to the amount of grass and thus work with less capacity reserve and, all other things being equal, have a greater output.

The cutting length of the forage harvester can be adjusted and adapted to the crop in question. The cutting length is usually reduced when cutting maize and whole crops to ensure greater damage of the grains. The shorter cutting length will of course require more power for which reason there will be a lower output when cutting maize and whole crop than when cutting grass, though it is difficult to compare.

The power requirements are also increased when the blades are worn and the shearbar adjustment thereby changes. It is necessary to sharpen the blades and adjust the shearbar during the season.

### SAFETY

Within agriculture there are generally many working-related injuries due to operation errors and insufficient instruction. The safety of persons and machines is an integral part of JF-Fabriken's development work. **We wish to ensure the safety of you and your family in the best possible way**, but this also requires an effort on your part.

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

As already mentioned the machine is only intended for one purpose, namely:

Chopping of grass and similar green crops for feeding purposes.

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

The machine demands skilled operation, which means that **you should read the instruction manual before you connect the machine to the tractor**. Even though you have been driving a similar machine before, you should read the manuals - 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.

### DEFINITIONS

The safety decals and the instruction manual of the machine contain a line of safety notes. The safety notes mention certain measures, which we recommend you and your colleagues to follow as to increase the personal safety as much as possible.

We recommend that you take the necessary time to read the safety instructions and inform your staff to do the same.



In this instruction manual this symbol is used with reference to personal safety directly or indirectly through maintenance of the machine.

#### CAUTION:

The word CAUTION is used to ensure that the operator follows the general safety instructions or the measures mentioned in the instruction manual to protect himself and others against injuries.

#### WARNING:

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

#### DANGER:

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

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## **GENERAL SAFETY INSTRUCTIONS**

The following is a brief description of the measures, which should be a matter of common knowledge to the operator.

1. Always disengage the PTO drive shaft, activate the parking brake and stop the tractor engine before you
  - lubricate the machine,
  - clean the machine,
  - disassemble any part of the machine,
  - adjust the machine.
2. Always block the wheels before working under the machine.
3. Never start the tractor until all persons are safely away from the machine.
4. Make sure that all tools have been removed from the machine before starting the tractor.
5. Make sure that all guards have been mounted correctly.
6. During work never wear loose clothes or have your hair hang down as it may be pulled in by the moving parts of the machine.
7. Always wear suitable shoes to avoid falling.
8. Do not change the guards or work with the machine when a guard is missing or defective.
9. Always drive with the statutory lights and safety marking during transport on public road and at night.
10. Limit the transport speed to maximum 30 km/h if the machine has not been marked with another maximum speed limit.
11. Do not stand near the machine while it is working.
12. When mounting the PTO drive shaft check that the number and direction of RPM of the tractor matches those of the machine.
13. Always use hearing protectors if the noise from the machine is annoying or if you are working with the machine for a considerable period in a tractor cabin, which has not been silenced sufficiently.
14. Never allow anybody to be on the machine during work or transport.
15. Never use the machine for other purposes than what it has been constructed for.
16. Do not allow any children to be near when you are working with the machine.

## 1. INTRODUCTION

17. Never stand between the tractor and the machine during connection and disconnection.
18. Do not feed material into the cutting unit, using hands or feet, while it is working.
19. Do not try to remove material from the cutting unit while it is working.
20. If material must be removed from the forage harvester, the PTO shaft must be disconnected completely. If in doubt stop the tractor engine before removing any material from the forage harvester.

### LOCKING OF GUARDS

All hinged guards on the machine are equipped with a lock. The lock ensures that the guard cannot be opened without tools. There are two different types of lock. Fig. 1.1 and 1.2 show the two locking principles and the corresponding transfers which indicate and illustrate the locks on the machine.

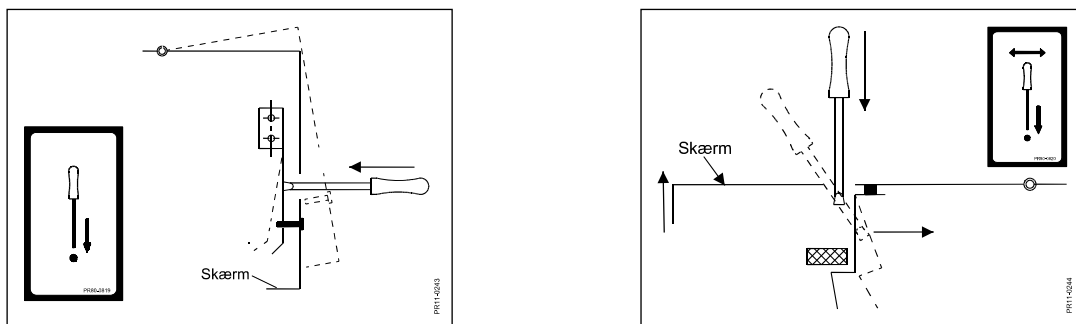


Fig. 1-2

### CHOICE OF TRACTOR

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

Choose a tractor which has at least 80kW/110 HP at the power take-out but cannot deliver more than 140kW/190 HP.

The machine is as standard constructed for 1000 RPM, and is delivered from the factory with 1 3/8" PTO drive shaft with 21 splines yoke. As an alternative 1 3/8" yoke with 6 splines can be supplied for the PTO drive shaft of the machine

A suitable tractor will have a good range of gears for driving speeds between 5 and 8 km/h.

The tractor hydraulic system should deliver at least 170 bar and the adjustable relief valve should not allow more than 210 bar.

The following hydraulic outlets are necessary depending on the equipment used:

1	Single-acting	Pick-up lifting
1	Single-acting	Auto trailer hitch
1	Double-acting	Hydraulic drawbar

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It is important that there is direct access to the 12-volt battery of the tractor and that it is in a good condition.

The drawbar of the forage harvester has a drawing eye, for which reason the tractor should preferably have a clevis drawbar. The drawbar pin should be 30 mm diameter.

Always choose a tractor with a closed cabin when working with a precision chopper.

### CONNECTION AND DISCONNECTION

Always make sure that nobody is standing between the tractor and the machine during connection and disconnection. An unintentional manoeuvre with the tractor may cause serious injury (see fig. 1-3). When disconnecting it is important that the ground is even and stable so that the machine does not move and injure persons or cause damage to other equipment.

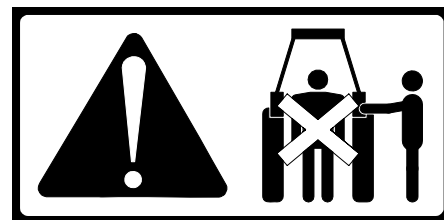


Fig. 1-3

The same precautions must be taken when connecting/disconnecting trailers by means of the hydraulic hitch at the rear of the forage harvester.

Check that the machine is intended for the number and the direction of rotation of the tractor PTO. (see figure 1-4). A wrong number of rotations over a long period may damage the machine and at worst result in ejection of parts through the delivery chute.

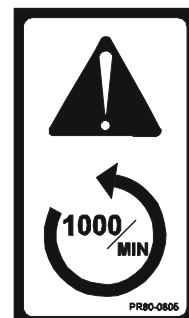


Fig. 1-4

Make sure that the PTO drive shaft has been mounted correctly, i.e. that the lock pin is in mesh and that the support chain has been fastened at both ends.

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



#### IMPORTANT:

Before connecting a trailer with the hydraulic hitch, always:

- Disengage the PTO.
- Wait until all moving parts have stopped.



#### WARNING:

Before using the hitch check that the lock is not rusty. It is possible to connect the trailer without the locking pawl being engaged, but movements during transport might cause the trailer to fall off.

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

When parking the machine and after the tractor engine has stopped make sure that there is no pressure in the hydraulic hoses by activating the tractor hydraulic spool valves.

Hydraulic oil under pressure can penetrate the skin and cause serious infections. You should always protect the skin and the eyes against oil

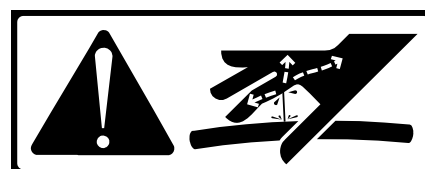


Fig. 1-5

## 1. INTRODUCTION

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splashes (see fig. 1-5). If, by accident, hydraulic oil under pressure hits you, consult a doctor immediately.



### **ADJUSTMENT**

#### **IMPORTANT:**

- Before adjusting the machine, always:
- Disengage the PTO from the tractor.
  - Stop the tractor engine
  - Wait until all moving parts have stopped.

It is important not to remove the guards until all revolving parts have stopped. This especially applies to the delivery chute above the blade cylinder.

If the cutting parts in the blade cylinder must be adjusted or replaced, it is important to block the blade cylinder as the sharp blades can easily cause injury.

Before working check that the feed rollers and the blade cylinder can move freely. Also check that the blades are intact and without cracks. Damaged blades must be replaced to prevent them from blocking or damaging the machine and to avoid metal parts being thrown out from the delivery chute.

Check periodically if blades and blade bolts are worn according to the rules in the instruction manual.

The first time you use the machine the blades and blade bolts may "bed in". For this reason you must check and tighten the blade bolts after the first working hour.

When lifting the delivery chute above the blade cylinder make sure that nobody is in danger of being hit by the guard. When lifting the guard, hold on to the hoop which is fastened to the intermediate guard with both hands.

### **TRANSPORT**

Limit the transport speed to maximum 30 km/h if the machine has not been marked with another maximum speed limit.

Always check that mechanical transport safety devices are activated before transport. If the machine has equipment for hydraulic transport adjustment the cylinder is fitted with a hose breach valve replacing the mechanical transport lock. An unintentional operation of the hydraulic handle of the tractor during transport may cause the machine to move to the opposite lane, the bicycle track or the sidewalk. This might also happen if there is air in the hydraulic cylinder.

To ensure all the air has been expelled from the oil in the hydraulic cylinders, test all the functions after the hydraulic connections are connected to the tractor. Especially before driving on public road.

Check that the mechanical locking devices at the hydraulic hitch are activated before transport. The hydraulic hitch has a pawl which secures the hydraulic cylinder and the hoses are not under high pressure.

The attachments of the forage harvester (pick-up etc.) must also be secured mechanically before transport.

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The statutory lighting and traffic markings must be placed correctly, on the forage harvester as well as the trailer.

Reflectors and lighting must be cleaned regularly.

### **WORKING**

Before you start working make sure that no persons are behind the forage harvester due to the danger of being hit by metal parts from damaged blades.

Also make sure that there are no persons in the trailer used for picking up. There is danger of suffocating in the flow of material or getting hit by metal parts.

If the feed rollers or the blade cylinder are blocked, disengage the clutches and stop the tractor engine immediately. Activate the parking brake and wait until the revolving parts have stopped before removing the material or the foreign matter.

Unfortunately, this cannot be said too often: Never remove material blocked in the machine while the machine is running and never feed material into the pick-up with your hands or feet as there is a serious danger of getting caught and pulled into the harvester which would cause dismemberment or death.

Therefore, never allow anyone to stand near the forage harvester while it is working, especially not children who do not know the danger and do unforeseen things.

### **PARKING**

Before parking the machine always lock the jack with the locking pin, otherwise the machine may tip over during parking. Also remember to block the wheels if there is a risk that the machine will move after parking

Remember to remove the hydraulic hoses before driving away with the tractor

### **GREASING**

When greasing or maintaining the machine never let more than one person work at the machine at a time. This reduces the risk of getting fingers caught because another person by accident turns the revolving parts while you are still working with them.

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

### **GRINDING**

When grinding always follow this procedure:

- Stop the tractor engine.
- Activate the parking brake.
- Wait until all moving parts have stopped.

Unfortunately it is necessary to remove some of the guards to change the direction of rotation of the rotor when grinding the blades. As there are chain and belt transmissions your hands may be injured if the revolving parts have not stopped before the guards are removed.

Grinding is performed according to the following procedure:

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1. Check if the grindstone is undamaged and if the device is able to move back and forth easily.
2. Lower the guard behind the grinding device to give access to the blade cylinder.
3. Adjust the stone and guard the grinding device again.
4. Remove the guard above the blade cylinder transmission and change the direction of rotation of the rotor.
5. Fasten the guard again and check that there are no persons near the machine.
6. Start the tractor again and keep the rpm close to idling.
7. Perform the grinding carefully.

Always use safety glasses when grinding as small particles from the grindstone might hit you.

When grinding has finished, stop the tractor engine, change the direction of rotation and fasten all guards.

**REMEMBER:** Only grind with all guards closed!

### **MAINTENANCE**

After approx. 2 days of operation all bolts must be re-tightened, especially the blade bolts of the blade cylinder.

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

When replacing parts in the hydraulic system always make sure that the pick-up rests on the ground and/or the lifting cylinders are blocked.

Hydraulic hoses must be checked by an expert before use, and after that minimum once a year. If necessary, they must be replaced. The working life of hydraulic hoses should not exceed 6 years, including maximum 2 years of storage.

When replacing, always use hoses which comply with the requirements stated by the manufacturer. All hoses are marked with date of production.



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### REPLACEMENT OF WEARING PARTS

Blades, blade bolts and shearbar are made of high-alloyed, heat-treated materials. This heat treatment provides especially hard and ductile material which is able to withstand extreme stress. Damaged blades, blade bolts or shearbars must be replaced by original -JF- spare parts to ensure safe operation.

Blades and blade bolts must be checked every day during the season.

The special blade bolts must be tightened with a torque wrench to 40 kgm.

When the blades have been worn max. 8 mm or approx. 12 mm above the straight piece, they must be replaced (see fig. 1-6).

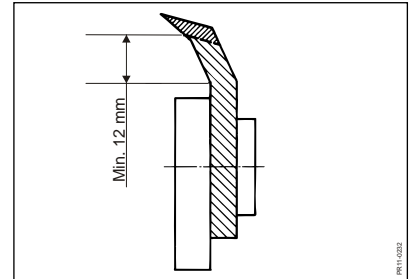
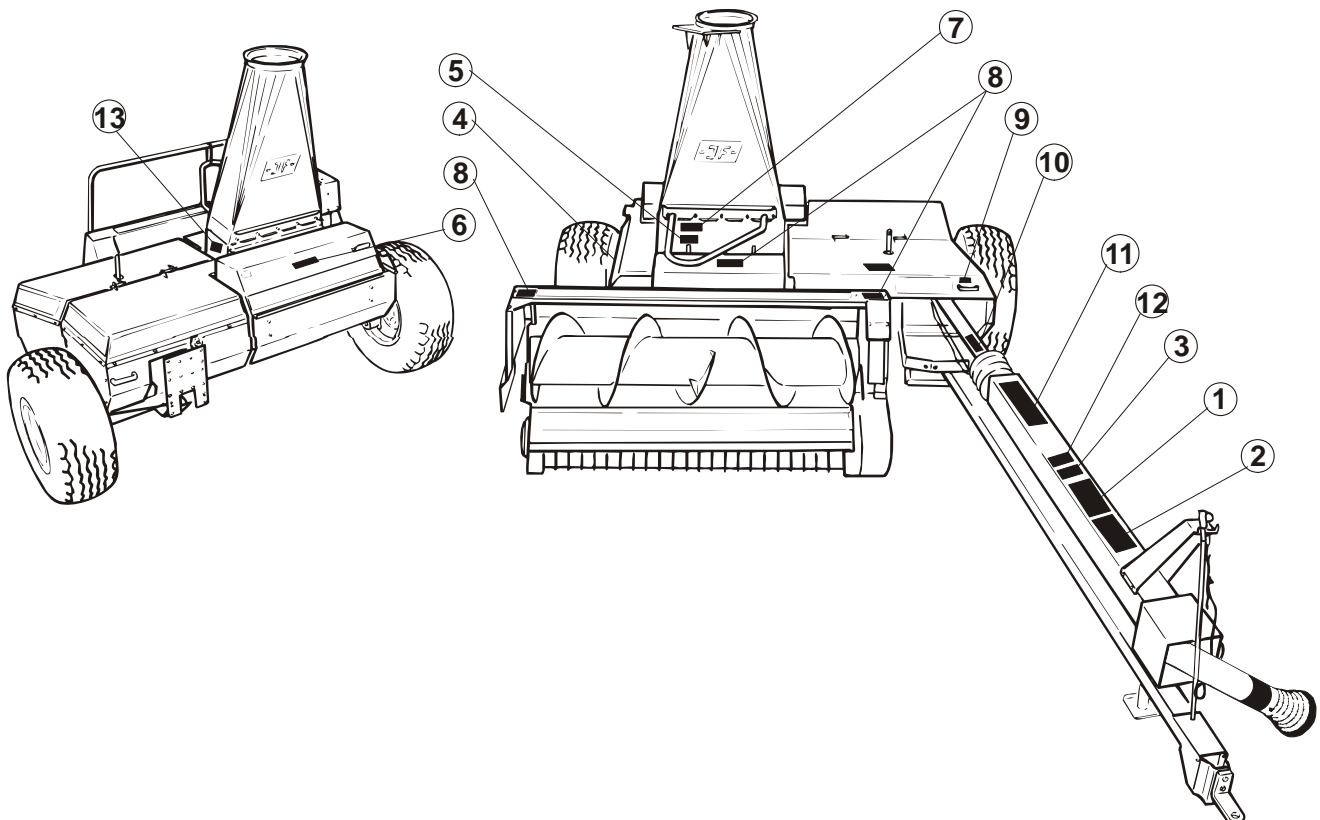
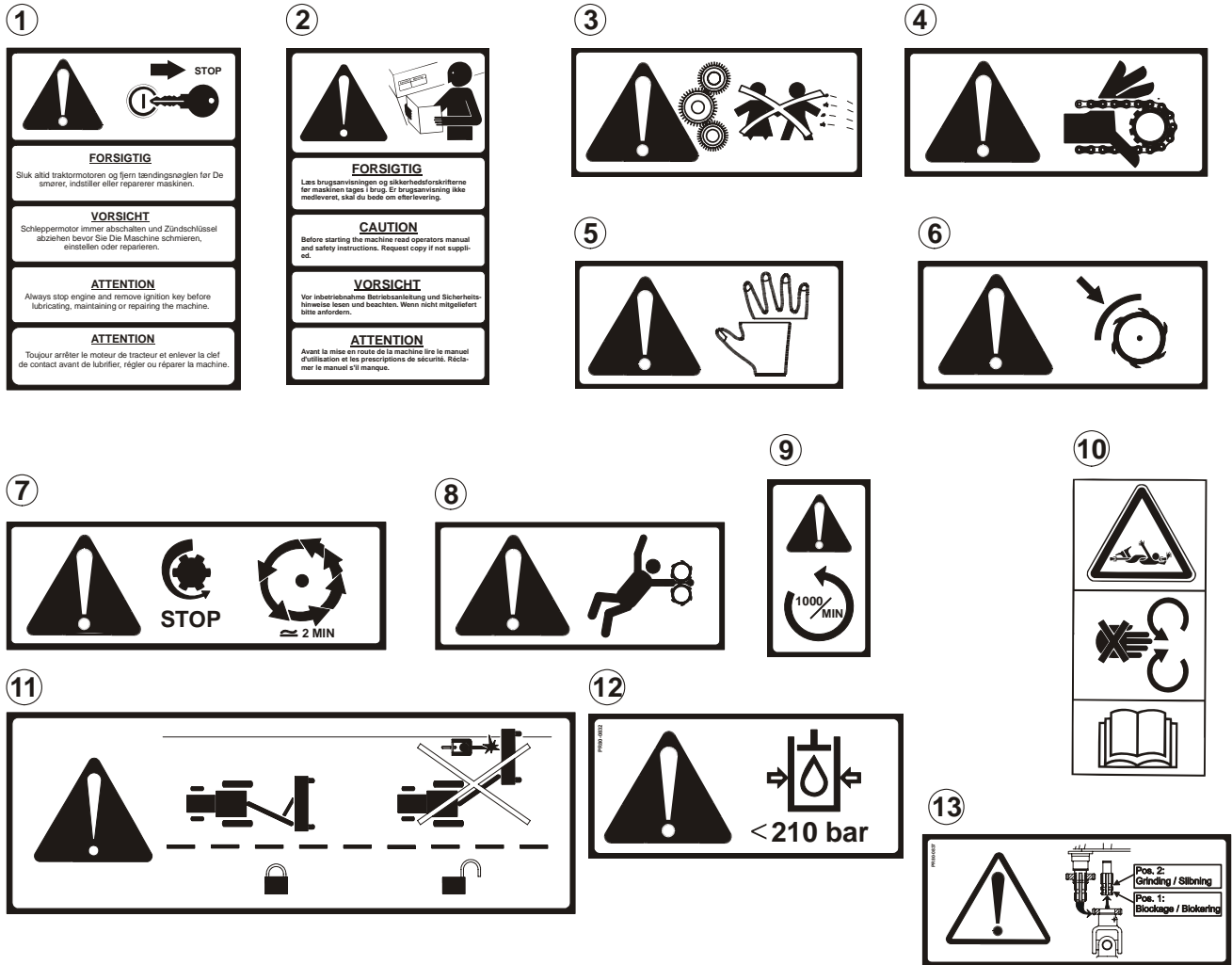


Fig. 1-6

After replacement of blades, blade bolts and the like, check that no tools have been left in the machine.

# 1. INTRODUCTION



# 1. INTRODUCTION

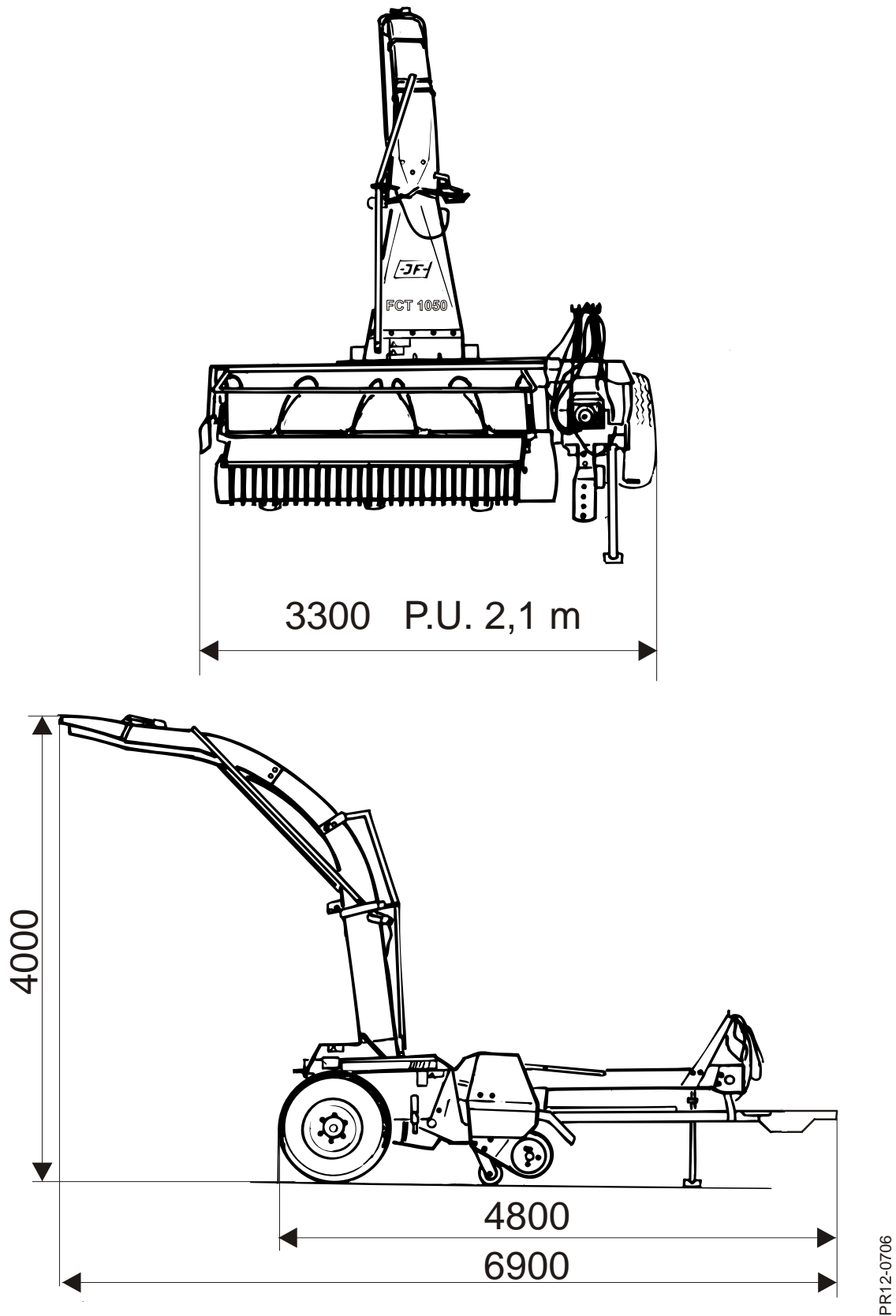
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## SAFETY DECALS

The safety decals shown on the previous page are positioned as shown on the drawings on the opposite page. Before using the machine, check that all decals are present: if not, require those missing. The decals have the following meaning:

1. **Stop the tractor engine and remove the ignition key before touching the machine.**  
Always remember to stop the tractor engine before lubricating, adjusting, maintaining or repairing. Also remember to remove the ignition key to ensure that nobody starts the engine until you have finished.
2. **Read the instruction manual and the safety instructions.**  
This is to remind you to read the delivered documents to ensure the machine is operated correctly and to avoid unnecessary accidents and machine damage.
3. **Children.**  
Never let children stand near the machine during operation. Especially not small children as they have a tendency to do unforeseen things.
4. **Chain drive**  
One or more chain drives are placed under this guard. Make sure that the tractor engine has stopped before opening the guard.
5. **Risk of cutting.**  
There is a risk of getting fingers etc. caught several places on the machine. Be careful when the machine is connected to the tractor and ready to work. The machine can easily crush or cut off any part of the body that might get caught in the machine.
6. **Remember the guards when grinding.**  
Remember to close ALL guards before grinding.
7. **Rotating parts.**  
After the PTO drive shaft has stopped, the blades will have a momentum where they keep rotating for up to 2 minutes. Wait until the blades have come to a complete stop before removing guards for inspection or maintenance.
8. **Risk of getting pulled into the machine**  
Do not stand near the attachments or the feed rollers while the machine is running. Make sure that the tractor engine has stopped first.
9. **The number and the direction of rotations.**  
Check that the PTO drive shaft runs with the right RPM and in the right direction. A wrong number of rotations and/or direction of rotation can damage the machine with the risk of personal injury as a result.
10. **The PTO drive shaft.**  
This decal has the purpose to remind you how dangerous the PTO drive shaft can be if it is not correctly mounted or protected.
11. **Remember the transport lock.**  
Always remember to check the transport lock before transporting the machine on public road. Errors in the locking system and unintended manoeuvres may cause the machine to move to working position during transport which may result in serious machine damage or personal injury.
12. **Maximum 210 bar.**  
Make sure that the hydraulic components are not exposed to more pressure than maximum 210 bar as there could be a risk of explosive damage of parts. Hereby you expose yourself and others to serious danger of getting hit by metal parts with high speed or oil under high pressure.
13. **PTO drive shaft for rotor.**  
There is an alternative pin for the PTO drive shaft for the rotor. It is used when the rotor is disconnected during reverse and when the rotor rotates in the opposite direction during grinding. Make sure that you place the PTO drive shaft correctly on the pin when performing these operations.

## DIMENSIONS



## TECHNICAL DATA

Technical data	FCT 1050
Pick-up width	1.8 m or 2.1 m
Working width cutter bar (Option)	2.4 m
Power requirement	88-147 kW/120-200 HP
Capacity (*)	35-100 t/hour
Blade rotor width	0.72 m
Rpm for rotor	1600 rpm
Number of blades, standard	24
HD blades	Standard
Grinding device	Grindstone with quick adjustment
Reverse grinding	Standard
Theoretical cutting length, standard	8.5 and 16.5 mm
Reversible shearbar, tungsten-coated	Standard
Number of feed rollers	4
Reverse of feed intake	Standard, electric
Electrical functions	Chute swivelling, deflector and reverse
Hydraulic functions	Lifting of pick-up and drawbar
Turning angle for chute	175 degrees
Pick-up, pre-lubricated	Standard
Weight with pick-up	2100 kg (1.8 m) or 2130 kg (2.1 m)
Max. length	6.9 m
Max. width with pick-up	3.3 m
Maximum height	4.0 m
Tyre dimension standard	14/65 x 16
Tyre dimension (option)	19/45 x 17
Freewheeling clutch in PTO shaft	Standard
Friction clutch in PTO shaft	Standard, 1700 Nm
Steel wheels on pick-up	Standard
Rubber wheels on pick-up	Option
Hydraulic Auto-Hitch	Option

(\*) Depends on dry matter content, cutting length, the condition and the amount of the crop.

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

## 2. CONNECTION TO TRACTOR

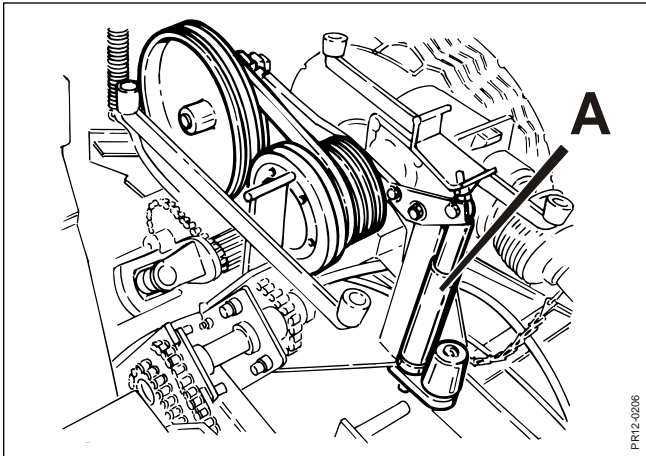


Fig. 2-1

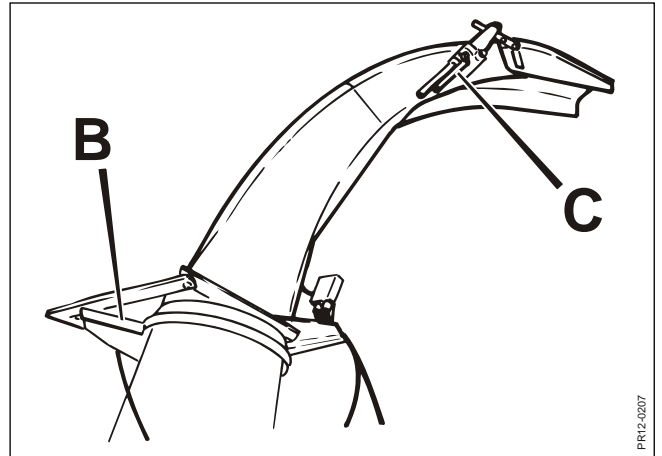


Fig. 2-2

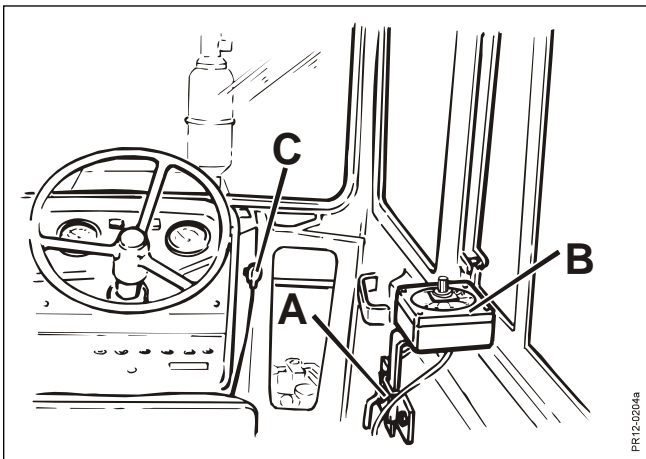


Fig. 2-3

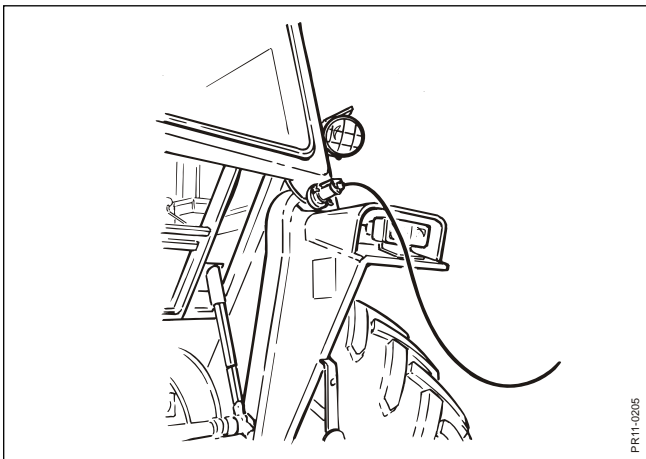


Fig. 2-4

# 2. CONNECTION TO TRACTOR

## THE HYDRAULIC SYSTEM

The machine requires 1 single-acting hydraulic outlet for pick-up/cutting unit and 1 double-acting outlet for the drawbar. Furthermore a single-acting outlet is needed for the hydraulic hitch which is additional equipment.

Therefore the tractor should have 2 single-acting and 1 double-acting outlets to be able to drive with a fully equipped FCT 1050.

## ELECTRONICS

The following solely applies to standard machines without metal detector (MD). For machines with MD see the section ELECTRONICS in chapter 5 "METAL DETECTOR (MD)"

**Fig. 2-1** The reverse function, the swivel chute and the deflector on the chute are controlled by electric motors (**A**, **B** and **C**).

**Fig. 2-2** The motors are operated from a control panel in the tractor cabin.

**Fig. 2-3** Mount the holder **A** for the control panel in a suitable place within the reach of the tractor driver and mount the control panel **B**.

Connect the 2-pole socket **C** on the power supply cable to the instrument board in case such a socket is not already mounted in the cabin. Connect the cable directly to the tractor battery, connecting the cable with the fuse box to **+** (positive) on the battery (remember that the fuse must be placed near the battery).

The 2-pole plug from the control panel can now be connected to the power supply cable.



### CAUTION:

It is very important for the functioning of the electric system that there is a good connection to **-**(negative/earth) and **+**(positive) on the battery.

We advise you not to connect to for instance the wiring of the lights as the wire thickness for these systems is usually not sufficient to transfer the necessary power.

**Fig. 2-4** Mount the 7-pole socket (mounted on the cable from the control panel) at the rear of the tractor just outside the cabin with the supplied wing nuts.

The 7-pole plug from the machine can now be connected to the control panel.

Subsequently it is easy to dismount the electric equipment in the cabin if you are not going to use it for a considerable period of time.



### CAUTION:

When the electric equipment has been dismounted and is not going to be used for some time it must be kept in a dry place and the plug on the machine must be wrapped up or placed under a guard.

## DRAWBAR AND PTO DRIVE SHAFT

The PTO drive shaft between the tractor and the machine is a wide-angle shaft which enables the machine to turn sharply and thus obtain a small turning radius. The mounting of the PTO drive shaft must always be adjusted to the tractor in question which means that it may be necessary to shorten the PTO drive shaft.

## 2. CONNECTION TO TRACTOR

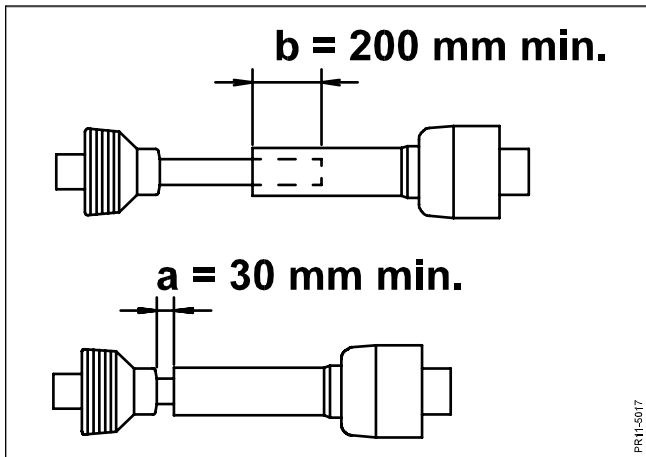


Fig. 2-5

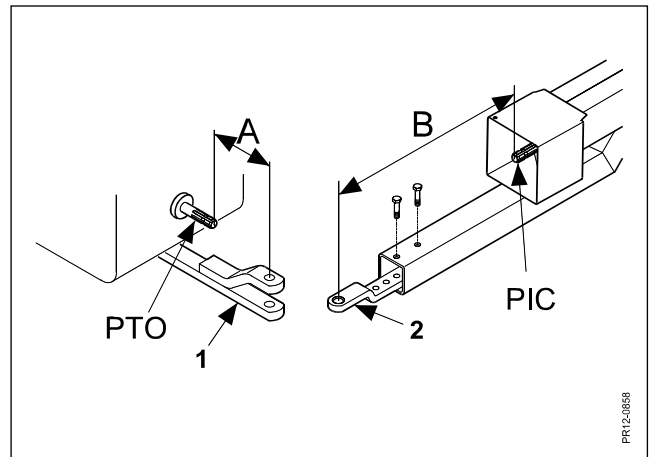


Fig. 2-6

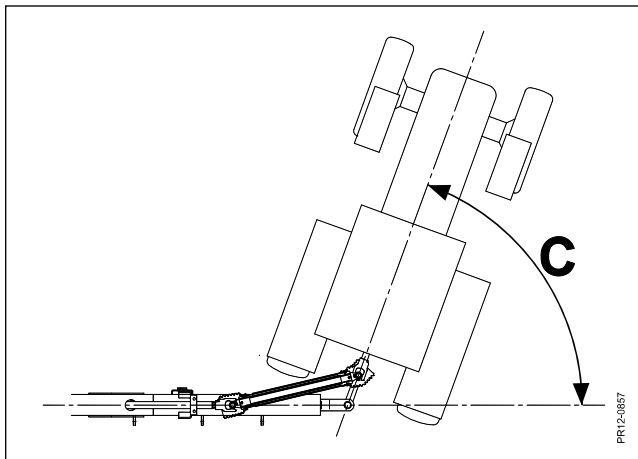


Fig. 2-7

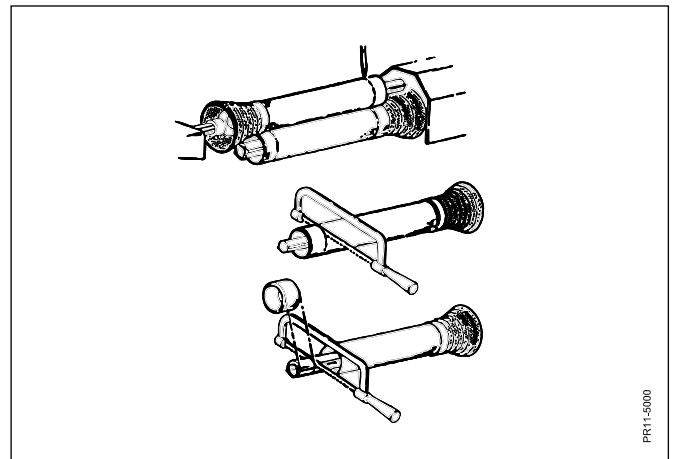


Fig. 2-8



## 2. CONNECTION TO TRACTOR

**Fig. 2-5** Adjust the PTO drive shaft between the tractor and the machine so that it:

- In working position has at least 200 mm overlapping, see measure **b** on fig. 2-5.
- In no position is compressed more than the prescribed 30 mm in order not to bottom the shaft, see measure **a** on fig. 2-5.



**WARNING:** To observe the latter the tractor driver often needs to pay attention to the length of the shaft when turning in the field and adjust the driving accordingly.

**Fig. 2-6** Adjust the drawbar of the tractor (1) to the shortest possible distance "A". Adjust the drawbar (2) of the machine so that the distance "B" is as long as possible. The drawbar (2) of the machine must be placed so that the PTO shaft is as close to horizontal as possible.

NB: The drawbar tongue **must** be mounted with 2 bolts.

**Fig. 2-5** Check the maximum turning angle "C" with the machine lifted.

**Fig. 2-7** Due to the position of the PTO drive shaft, the turning angle "C" is limited by the fact that the PTO drive shaft is not compressed more than the prescribed 30 mm distance in order not to bottom the shaft.

**Fig. 2-5** In some cases it is possible to increase the turning angle "C" by shortening the PTO drive shaft.

**Fig. 2-7** The PTO drive shaft should only be shortened if the overlapping is more than 200 mm when driving forward and with the machine in working position.

### SHORTENING OF THE PTO DRIVE SHAFT

It is necessary to be very careful when shortening the PTO drive shaft. If the PTO drive shaft is shortened too much, there is a risk that the profile tubes are drawn apart during sharp turns, which may cause serious damage.

On the other hand, if the PTO drive shaft is not shortened enough there is a risk of squeezing during work, which may cause high frictional forces in the PTO drive shaft, which again damages the axle joints.

**Fig. 2-8** Fasten the halves of the shaft to PTO and PIC, respectively, when these are right opposite each other with the machine in working position. (The longest distance on this machine). Hold the shaft ends parallel to each other and mark the wanted shortening, minimum 200 mm overlapping. Shorten all 4 tubes equally.

The ends of the profile tubes must be rounded off and burrs must be removed carefully. It is very important that the tubes are smooth and clean before greasing. Grease the tubes carefully before reassembling.



**WARNING:** Never turn so sharply that there are less than the prescribed 30 mm distance in order not to bottom the shaft. See measurement a in fig. 2-5.

With some tractors the PTO drive shaft bottoms when turning sharply whereby the shaft and/or other transmission parts are damaged.

### FRICITION CLUTCH

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

Before starting a new machine, the clutch must be "aired". See section concerning the friction clutch in chapter 7 "MAINTENANCE".

### 3.MOUNTING OF EQUIPMENT

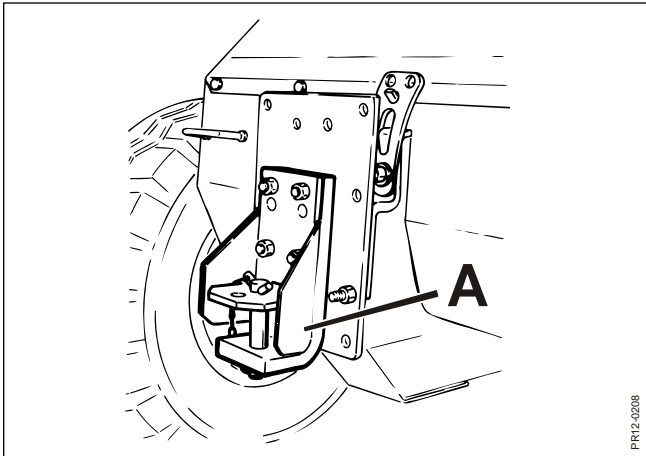


Fig. 3-1

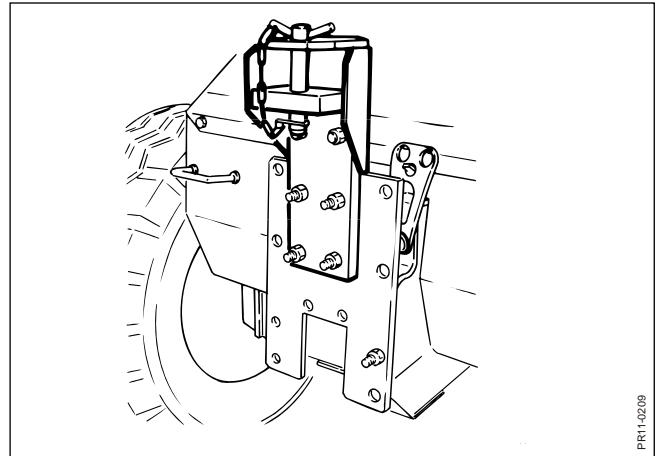


Fig. 3-2

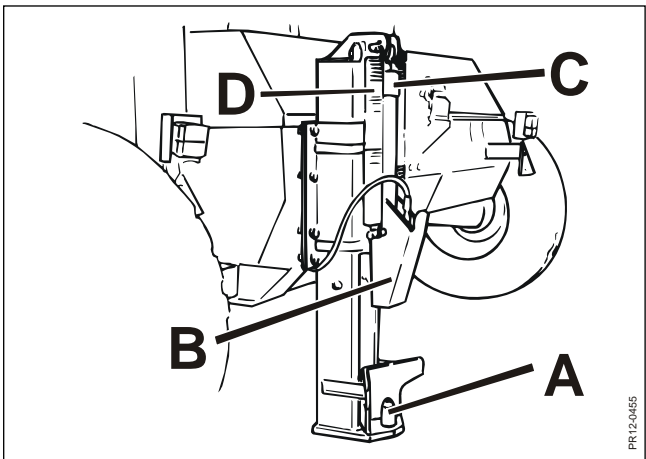


Fig. 3-3

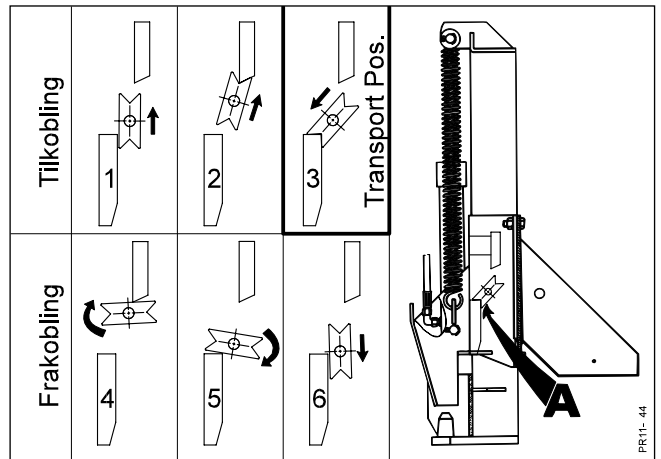


Fig. 3-4

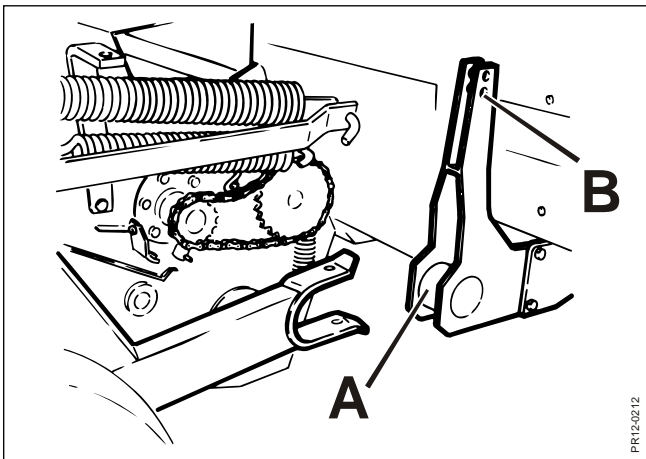


Fig. 3-5

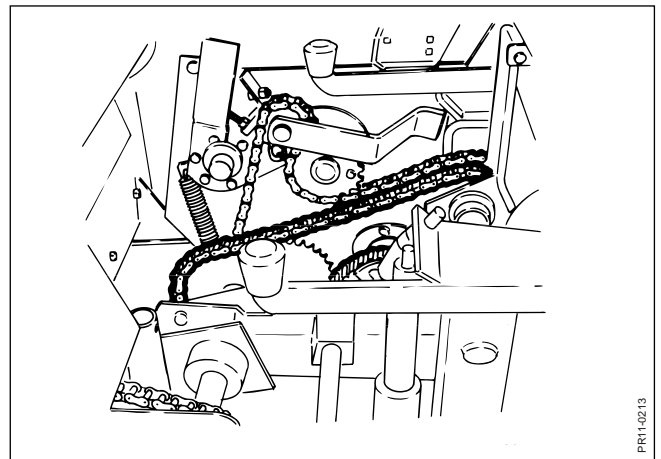


Fig. 3-6

# 3. MOUNTING OF EQUIPMENT

Mounting should take place in a workshop on even ground. However, the basic machine should always be mounted correctly to the tractor according to section 2 "CONNECTION TO TRACTOR" before equipment and accessories are mounted.

## HITCH FOR TRAILER

The machine can be supplied with combi-hitch or hydraulic hitch for connection of the trailer.

### COMBI-HITCH

**Fig. 3-1** Combi-hitch **A** mounted in lowest position.

**Fig. 3-2** Combi-hitch mounted in uppermost position. This position is used for trailers with overrun brake, e.g. in Germany.

### HYDRAULIC HITCH HOOK (AUTO-HITCH)

**Fig. 3-3** The hitch **B** is raised hydraulically by a single-acting cylinder **C**, and 2 tension springs **D** pull the hook down when pressure is relieved from the cylinder.

**Fig. 3-3** For connection of the trailer the machine must be reversed to the drawbar of the trailer. The hitch hook **A** must be lowered and the hitch eye of the trailer is caught by the hitch hook.

**Fig. 3-4** Lift the trailer with the hydraulic cylinder **1** until the pawl **A** is in mesh **2**. Pull the hydraulic handle shortly backwards so that the weight of the trailer rests on the pawl **A** and not on the hydraulic cylinder, and thus locks the hitch system **3**. When disconnecting the trailer, lift the hitch hook **4** with the hydraulic cylinder and the pawl **A** is automatically disengaged **5**. Then the hitch hook must be lowered by relieving the pressure of the cylinder and the weight of the trailer and the springs pull the hook down **6**, and the trailer is released.



**IMPORTANT:** Pos. 3 on fig. 3-4 is the only allowed position of the hitch for trailer transport, i.e. never drive with pressure in the hydraulic hoses.

## PICK-UP

**Fig. 3-5** Wheel the pick-up on the rollers to the machine so that the catch **A** is engaged. Mount the 2 pins to fix the pick-up to the basic machine.

The relief device is attached to the pick-up at **B**.

**Fig. 3-6** Mount the chain drive for the pick-up.

### 3.MOUNTING OF EQUIPMENT

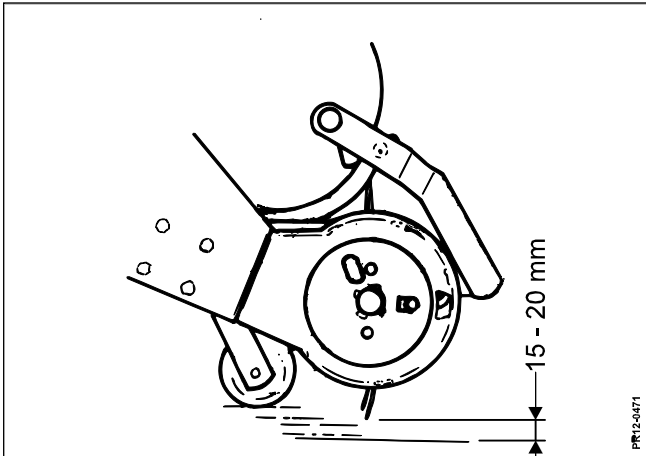


Fig. 3-7

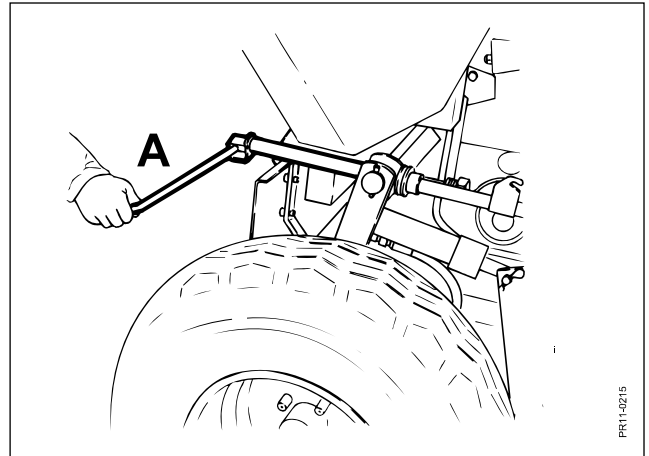


Fig. 3-8

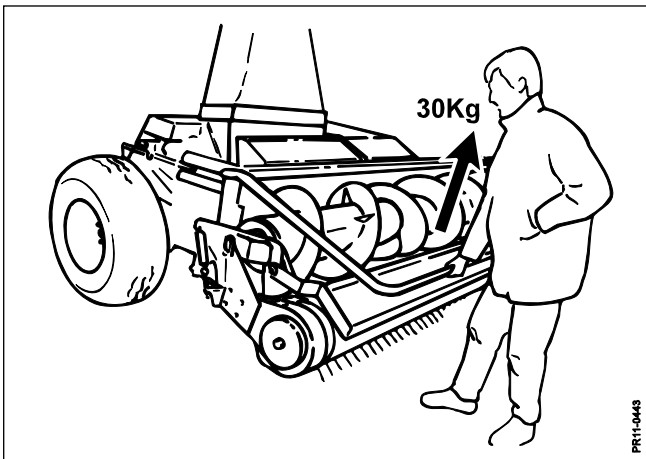


Fig. 3-9

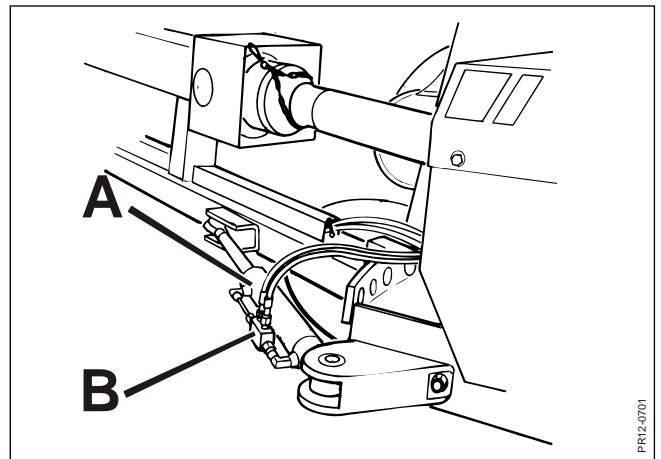


Fig. 3-10

### 3.MOUNTING OF EQUIPMENT

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- Fig. 3-7** The height of the rollers under the pick-up can be adjusted. Adjust the height so that there is 15 – 20 mm distance between the point of the pick-up tines and the ground.
- Fig. 3-8** Tighten the relief springs with the spindle **A** until the ground pressure for the pick-up is maximum 30 kg.
- Fig. 3-9** Check this by standing in front of the pick-up and pull the hoop upwards and estimate the ground pressure.

## TRANSPORT ADJUSTMENT, HYDRAULIC

- Fig. 3-10** The machine is fitted with equipment **A** for hydraulic adjustment of the drawbar. The hydraulic cylinder is equipped with a safety valve **B** which ensures that the machine does not make any unintentional turns in case of leaking hoses.

### 3.MOUNTING OF EQUIPMENT

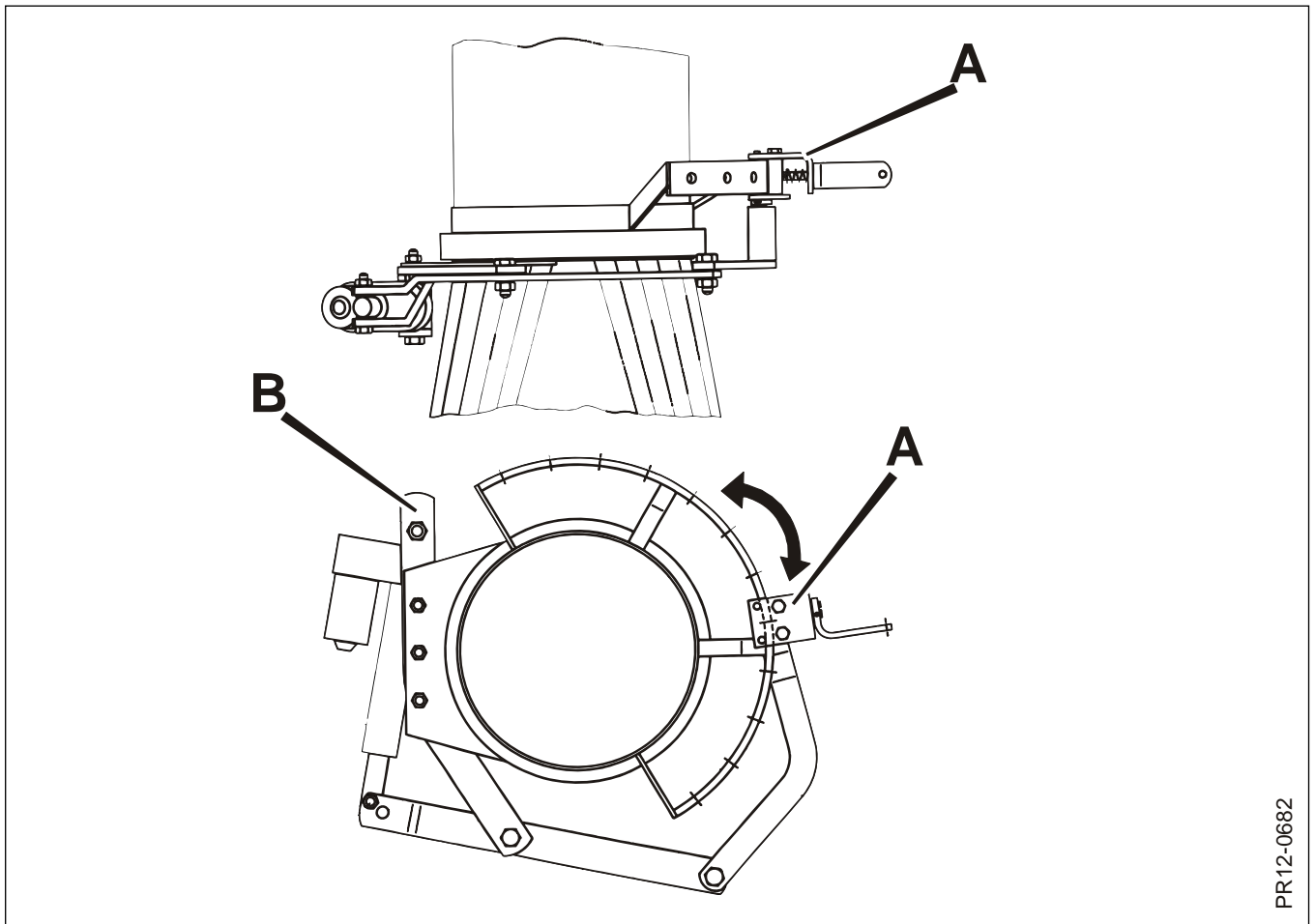


Fig. 3-11

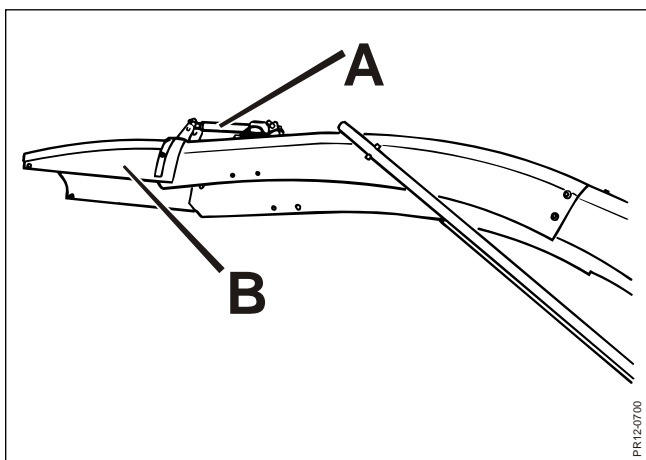


Fig. 3-12

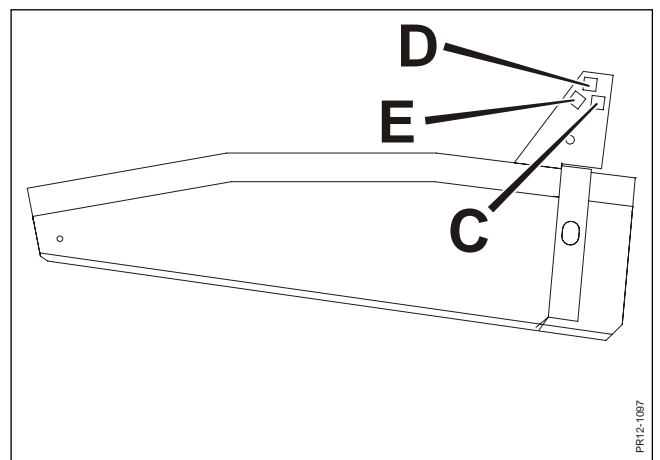


Fig. 3-13

### CHUTE AND DEFLECTOR

**Fig. 3-11** When the swivel chute has been mounted and adjusted, the assembled fittings are mounted as shown on the figure.

Place the bracket **A** above the adjusting bar and assemble it, then mount and fasten the bracket **B**. Grease the swivel ring and check that the delivery chute can turn freely.



**IMPORTANT:** Grease the swivel ring while turning the delivery chute manually to distribute the grease.

**Fig. 3-12** The electric motor **A** for the deflector **B** must also be mounted with wires facing downwards.

**Fig. 3-13** On the deflector there are 3 mounting possibilities: **C**, **D** and **E**. Mounting at **C** provides the best movement of the deflector when driving with FCT 1050.

***Standard machines:***

Connect the 7-pole plug from the machine to the socket at the tractor cabin according to the section ELECTRONICS in chapter 2 "CONNECTION TO TRACTOR".

***MD machines with metal detector:***

Connect the multiple plug from the machine to the control panel and the 3-pole plug to the socket on the power supply cable according to the section ELECTRONICS in chapter 5 "METAL DETECTOR (MD)".

Check that right/left turn of the chute and up/down movement of the deflector correspond with the marking for the joystick on the control panel in the tractor cabin. If the movements and the marking do not correspond the wires in the assembly box in question must be exchanged to obtain opposite movement.

### 3.MOUNTING OF EQUIPMENT

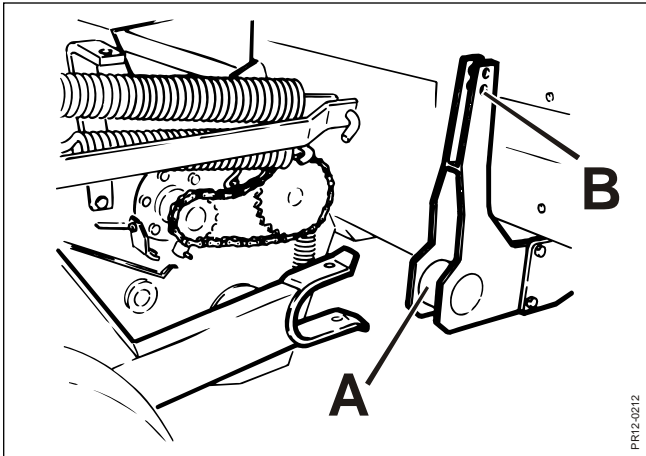


Fig. 3-14

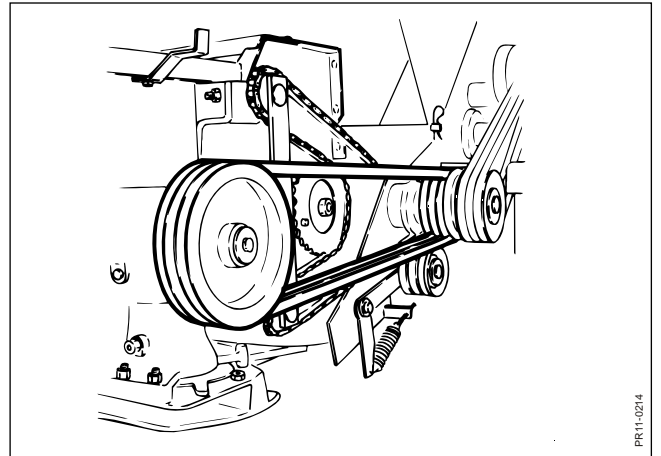


Fig. 3-15

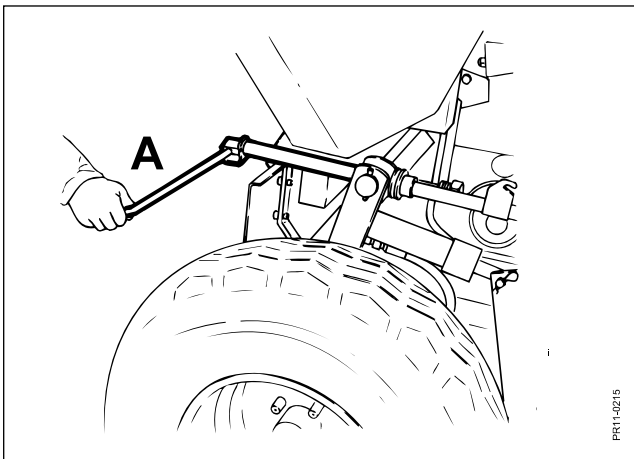


Fig. 3-16

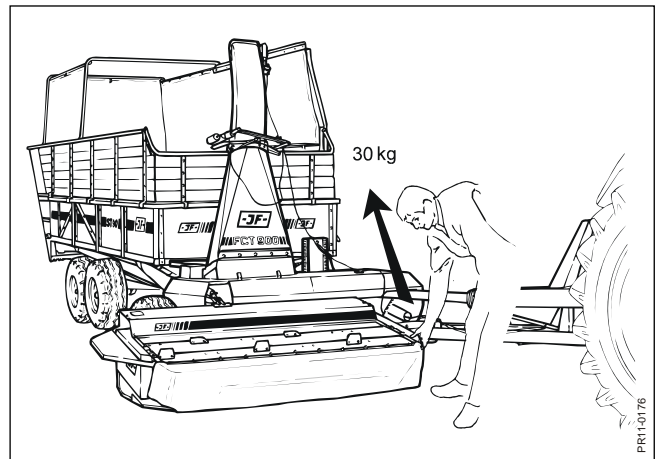


Fig. 3-17

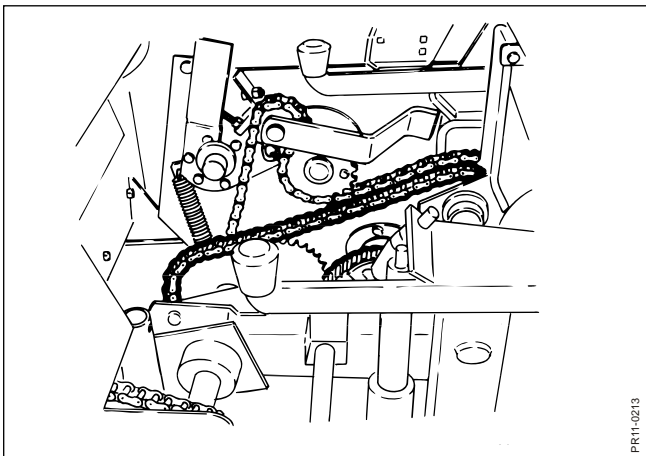


Fig. 3-18



## CUTTER BAR

Let the cutter bar rest on the jack and wheel the machine to the cutter bar.

**Fig. 3-14** Check that the two catches **A** are at the same height. Fix with pins and locking pins. Fix the relief springs to the cutter bar at **B**.

**Fig. 3-15** Mount the belt drive for the cutter bar and mount the chain drive for reel and auger.

**Fig. 3-16** Tighten the relief springs with the spindle **A** until the ground pressure from the maize

**Fig. 3-17** unit is approx. 30 kg.

## MAIZE UNIT

Let the maize unit rest on the jack and wheel the machine to the maize unit.

**Fig. 3-14** Check that the two catches **A** are at the same height. Place the pins and secure with locking pins.

Fix the relief springs to the cutter bar at **B**.

**Fig. 3-18** Mount the chain drive for the maize unit.

**Fig. 3-16** Tighten the relief springs with the spindle **A** until the ground pressure from the maize

**Fig. 3-17** unit is approx. 0 kg. (See also separate manual).

## 4. ADJUSTMENTS

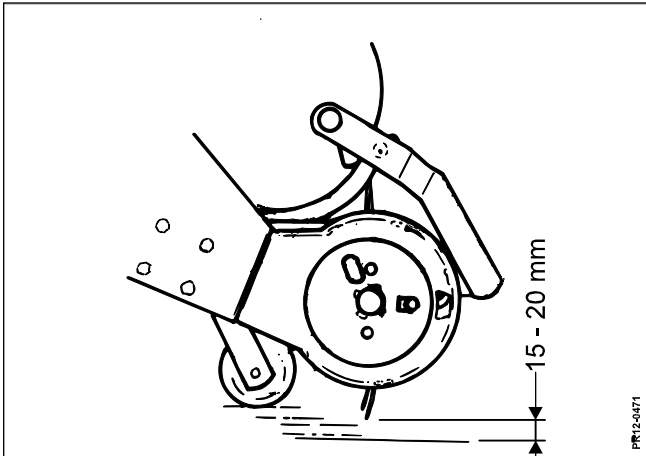


Fig. 4-1

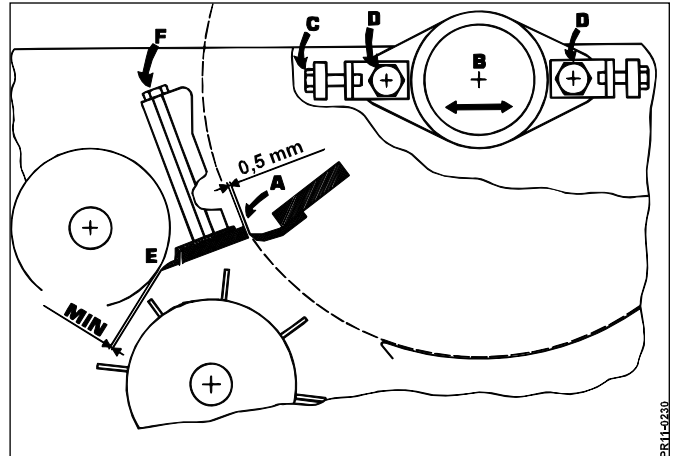


Fig. 4-2

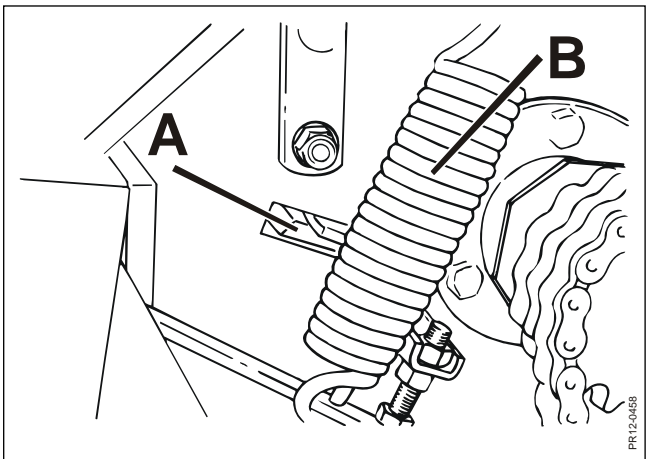


Fig. 4-3

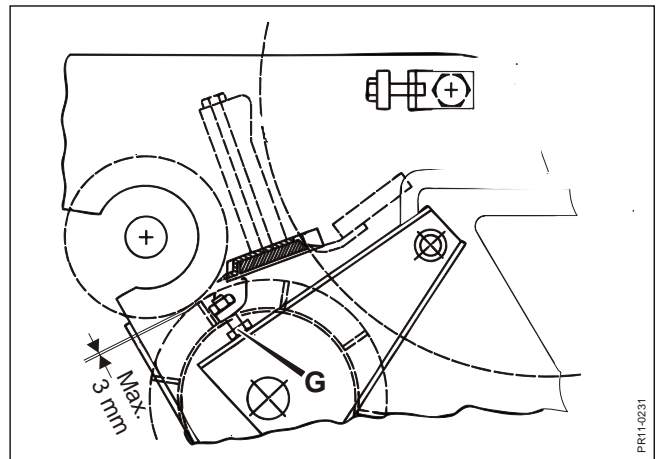


Fig. 4-4

# 4. ADJUSTMENTS

## PICK-UP

**Fig. 4-1** The pick-up is equipped with support rollers made of steel which are adjustable in height. You should keep the pick-up at such a height that the tines do not hit the ground and leave earth in the crop and can pick up the grass without waste.

JF-Fabriken recommends a distance between the pick-up tines and the ground of 15 to 20 mm.

The auger on the pick-up is equipped with a slip clutch. The slip clutch of the auger is adjusted so that it releases before the other friction clutches in the machine.

The highest capacity is obtained by working at a forward speed where you drive without blockage in the auger. If there is a blockage around the auger you stop and force the crop out of the machine by means of the reverse function. See also chapter 6 "DRIVING IN THE FIELD".

A continuous and even flow through pick-up and auger is the best way to avoid blockages inside the machine, otherwise more operational stoppages may occur.

The operator should always ensure spare friction discs for the slip clutch on the auger are in the tool box. If this clutch has often been in operation, the coating of the friction discs is worn and it cannot transfer sufficient transmission. It may therefore be necessary to replace the friction discs, but remember they have to be of the same number and quality.

## ROTOR AND ROLLER SECTION

**Fig. 4-2** The distance **A** between the blades of the rotor and the shearbar must be checked regularly with the delivered gauge (distance measuring device). You should aim at a distance of 0.5 mm. If it is necessary to adjust the distance, loosen the 2 bearing housings **B** and adjust with the screws **C**. When the distance has been checked, the bolts **D** of the bearing housings are tightened with a torque wrench to 27 kgm (270 Nm).

The machine is equipped with a scraper for the smooth roller **E**. The scraper is mounted together with the reversible shearbar just mentioned.

When mounting the scraper place it as close as possible not damaging the smooth roller **E** and then tighten the bolts **F** with a torque wrench to 10-12 kgm (100-120 Nm).

**Fig. 4-3** The scraper is dismantled by removing the screws **F** (on fig. 4-2), which also secure the shearbar, after which scraper and shearbar can be pulled out of the opening **A** in the rotor housing. The spring **B** for the serrated roller must be loosened or dismantled to get enough space.

If the shearbar has been worn it can be reversed for a new sharp edge.

**Fig. 4-4** The distance between the smooth roller and the serrated roller should be max. 3 mm. Adjustment is made with the bolts **G** at both sides of the rotor housing.

## 4. ADJUSTMENTS

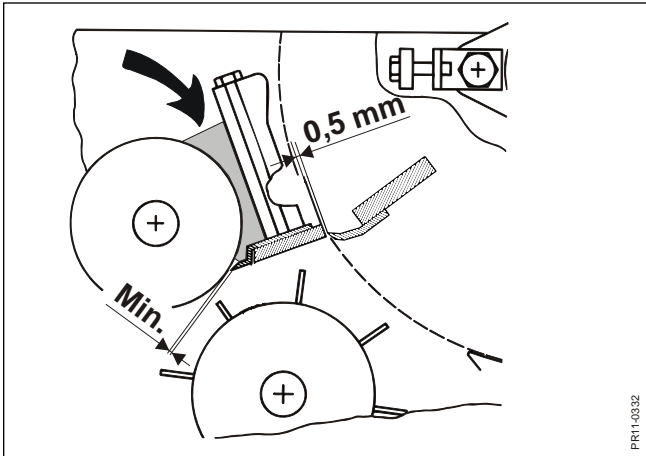


Fig. 4-5

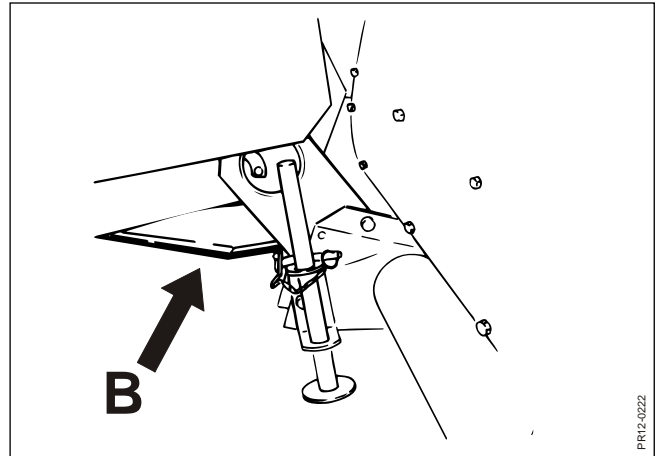


Fig. 4-6

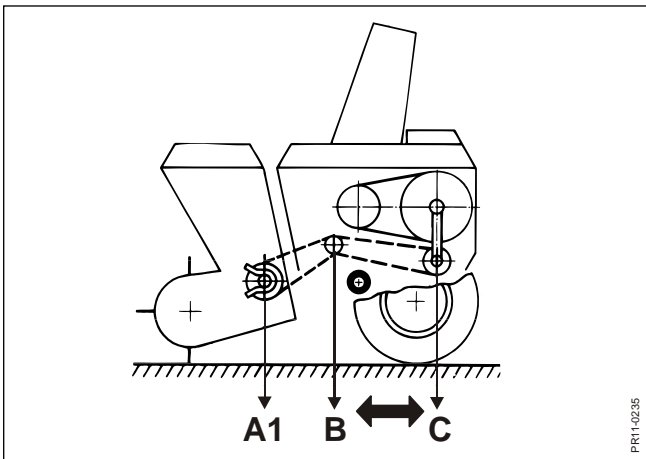


Fig. 4-7

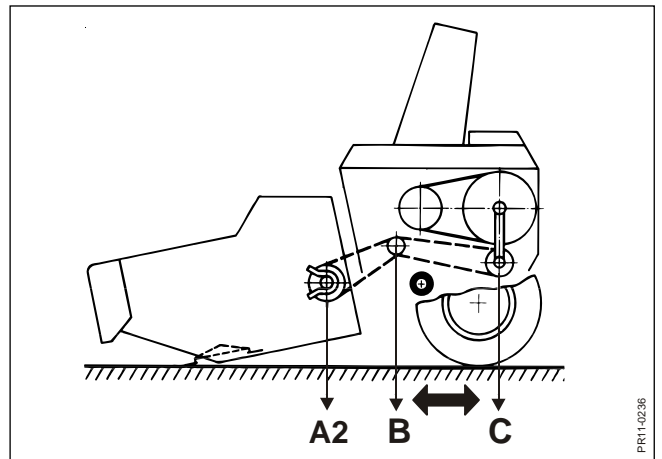


Fig. 4-8

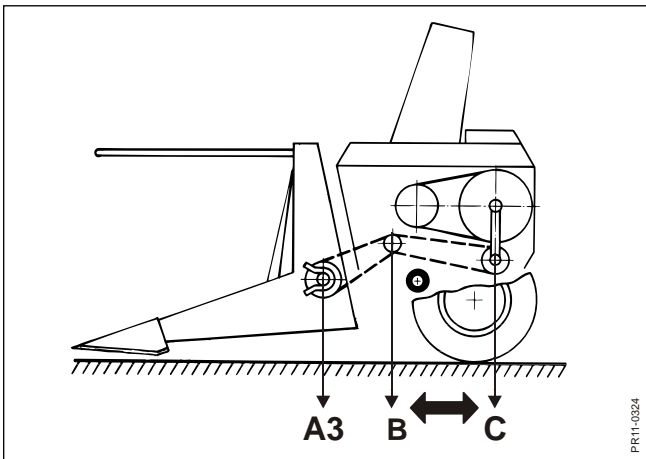


Fig. 4-9

## 4. ADJUSTMENTS

**Fig. 4-5** Under some conditions the crop substance (small particles) can accumulate in the shaded area and this may result in an overloading of the transmission driving the rollers.

Check the area after every 8 hours of operation and remove possible crop remains. Check, and if necessary adjust, the distance between scraper and smooth roller. The checking frequency can be reduced when the operator knows the machine under all conditions.

**Fig. 4-6** Under the roller section a bottom plate **B** has been mounted from the factory. This must be mounted when working in very dry and/or short crops to avoid waste under the rollers.



**IMPORTANT:** When working under normal conditions we recommend you to drive without this bottom plate as, otherwise, material can accumulate under the rollers causing reduced capacity and unnecessary overload of the transmission.

However, when driving in a crop where there is an excessive waste under the rollers, the bottom plate must be mounted.

## CUTTING LENGTHS

The cutting length depends on the following 2 conditions:

- 1) Number of blades on the rotor where there is
  - 6 row blade rotor which means 24 blades in total (Standard)
  - 8 row blade rotor which means 32 blades in total (Additional equipment)

**Fig. 4-7** 2) Feed intake speed which is changed by using the following sprocket wheels:

**Fig. 4-8**

**Fig. 4-9**

<u>Sprocket wheel No</u>	<u>Number of teeth Z</u>
2064-448X	14
2064-449A	18
2065-460X	21
2064-450A	25
2064-451A	30
2062-442X	36

The table below indicates the theoretical cutting length for possible combinations of the above sprocket wheels:

		Fig. 4.7 for pick-up (Standard) Fig. 4.8 for cutter bar (Option) Fig. 4.9 for maize unit (Option)				
<b>24 blades</b>	<b>32 blades</b>	<b>A1</b>	<b>A2</b>	<b>A3</b>	<b>B</b>	<b>C</b>
5.7 mm	4.2 mm	18	14	30	30	14
7.2 mm	5.4 mm	18	14	30	30	18
*8.5 mm	6.4 mm	21	14	36	25	18
10.0 mm	7.5 mm	21	14	36	30	25
12.0 mm	9.0 mm	36	18	36	25	25
14.3 mm	10.7 mm	36	18		25	30
*16.6 mm	12.4 mm	36	18		18	25

\*Standard cutting length

## 4. ADJUSTMENTS

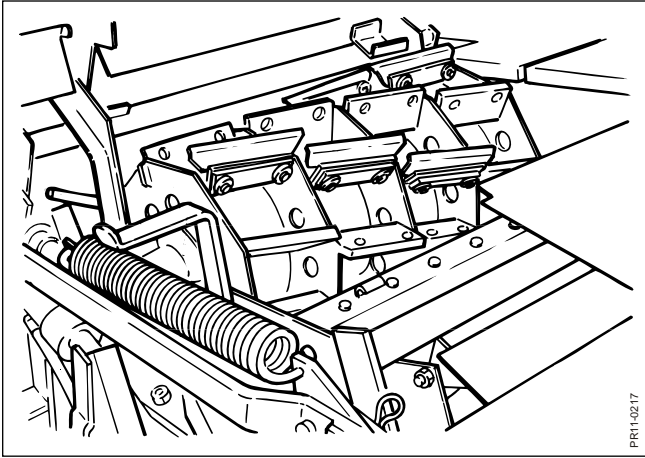


Fig. 4-10

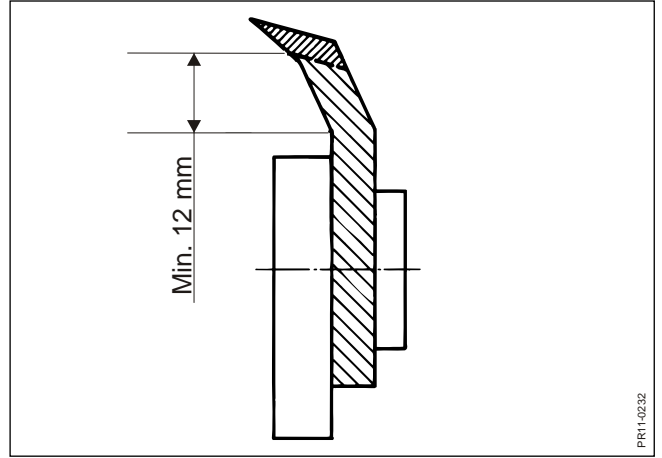


Fig. 4-11

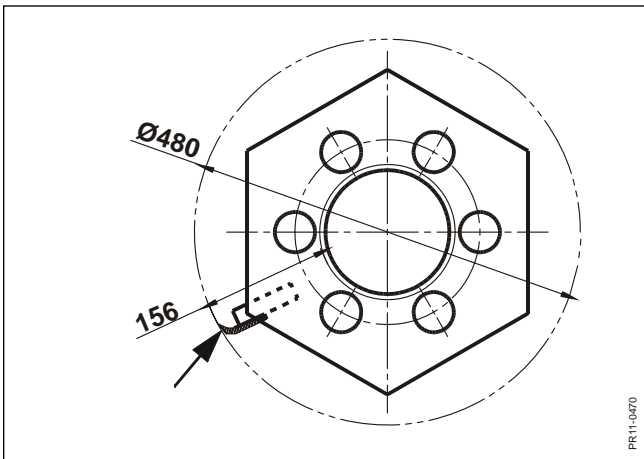


Fig. 4-12

**Fig. 4-10** All cutting lengths can be doubled by removing every second row of blades.

### REPLACEMENT AND ADJUSTMENT OF BLADES

When replacing a single blade the blade must be placed at the same distance from the shearbar as the other blades. To ensure that the rotor is in balance it may be necessary to replace the opposite blade as a used blade has a different weight compared to a new blade.

Even if there is no visible damage to the blade bolts, they should always be replaced together with the blades as they might have been overloaded.



**CAUTION:** Check the distance between the blade and the shearbar (0.5 mm) with the supplied gauge before the bolts are tightened.



**WARNING:** Only use original blade bolts when replacing. Tighten the blade bolts with a torque wrench to 400 Nm (40 kpm) or with the supplied spanner using approx. 40 kg leverage (400 Nm).

**Fig. 4-11** When the blades have been worn max. 8 mm or to the first bend, i.e. approx. 12 mm above the straight piece they must be replaced.



**DANGER:** When all blades on the rotor have been worn and the rotor adjusted towards the shearbar, it **MUST** be adjusted back again before new blades are mounted. Otherwise there is a risk that the new blades collide with the shearbar when the rotor is turned.

**Fig. 4-12** When mounting new blades they must be pulled out so that the outer diameter on the rotor is 480 mm (from rotor tube to blade point = 156 mm).

### GRINDING

Adjustment of the PTO drive shaft for the rotor to or from grinding position, respectively, may only take place **when the machine has been stopped and the rotor has come to a complete standstill**. The rotor may only rotate when the grinding device is in grinding position.

#### Check before grinding:

- that the grindstone is undamaged.
- that the device is easily sliding back and forth.
- that the device is parallel with the rotor.

The grinding device is correctly adjusted from the factory and therefore there is normally no need for adjustment, but if it has been dismantled adjustment can be made at the oblong holes of the lateral guides. The bolts must be tightened firmly after the adjustment.

The stone is fed by turning the handle.

## 4. ADJUSTMENTS

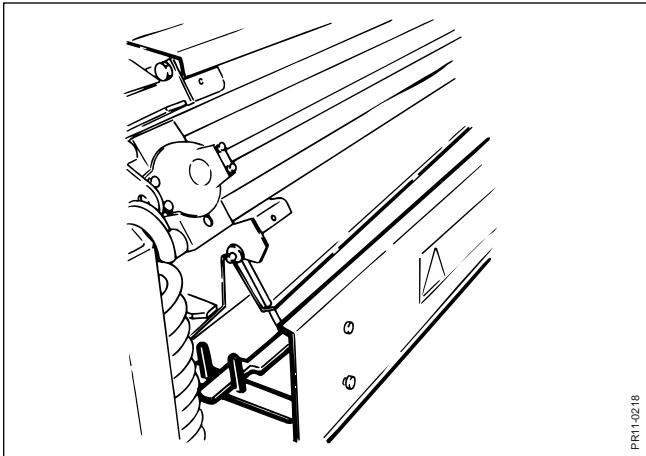


Fig. 4-13

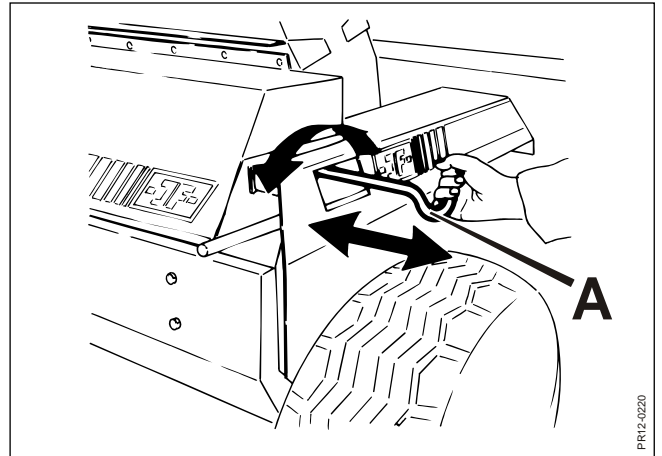


Fig. 4-14

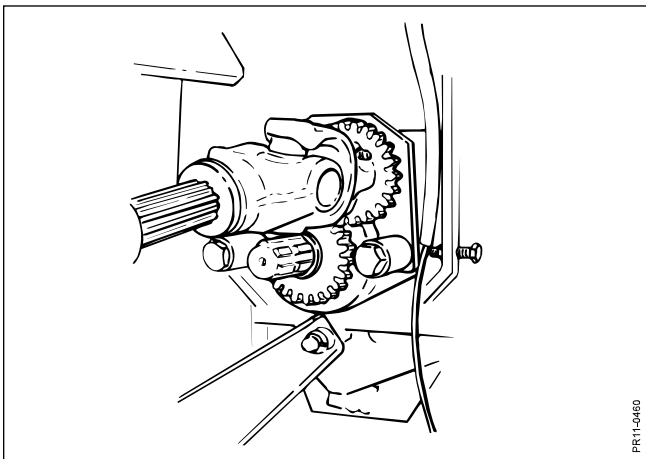


Fig. 4-15

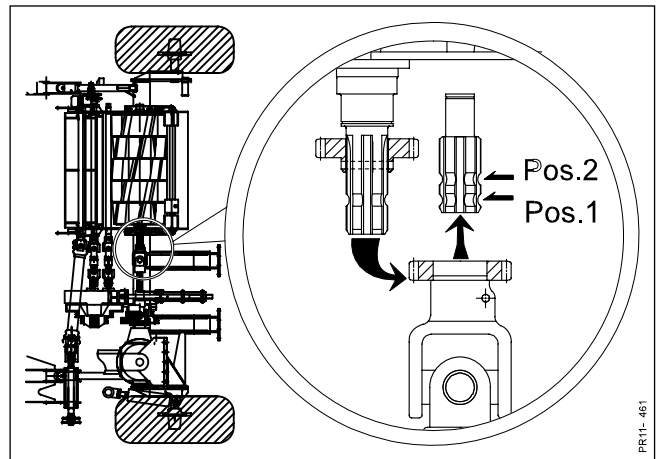


Fig. 4-16

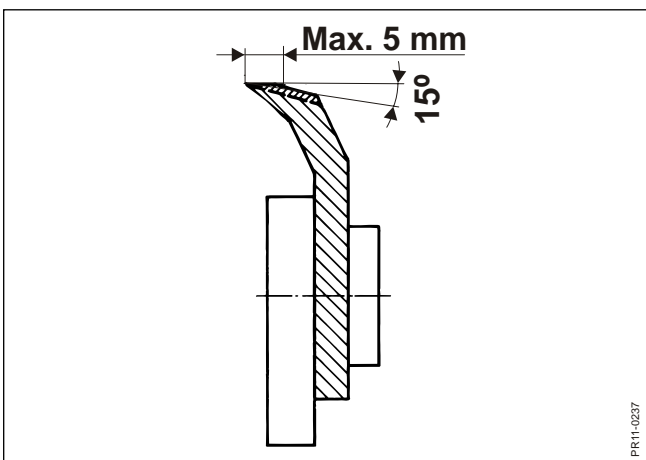


Fig. 4-17



## 4. ADJUSTMENTS

Normally you should grind the blades once a day – but avoid too much grinding.



**CAUTION:** Protect your eyes – always use safety glasses when grinding. The guard above the grinding device must be closed while grinding.

### GRINDING OPERATION

1. Lift the guard above the grinding device.

**Fig. 4-13** 2. Lower the guard between the grinding device and the rotor so that there is free space between the device and the rotor.

**Fig. 4-14** 3. Adjust the grindstone so that there is 2-3 mm clearance between the stone and the blades by turning the handle **A**.

**Fig. 4-15** 4. Mount the PTO drive shaft for the rotor on the free pin on the rotor housing. The PTO drive shaft must be fixed at pos. 2 whereby the rotor will rotate in the

**Fig. 4-16** opposite direction.

5. Close all guards.

6. Start the tractor and keep the rpm at a little above idle speed.

**Fig. 4-14** 7. Feed carefully by turning the handle **A** until the stone touches the blade. Move the stone in a sliding movement across the whole rotor and back again. Feed some more and repeat the movement across the whole width of the rotor.

8. Push the handle in after grinding. Stop the tractor and when the rotor has come to a complete stop, the guard between the device and the rotor must be lifted back into its right position. The PTO drive shaft for the rotor must be moved back to the pin for normal direction of rotation of the rotor.



**WARNING:** **REMEMBER, only grind with CLOSED guards.**

For safety's sake check the distance between blades and shearbars again with the gauge.

Check wear of the grindstone regularly. If the stone has been worn down to a thickness of 10 mm it must be replaced

### ROUGH GRINDING

**Fig. 4-17** To avoid unnecessary power consumption and excessive wear of the grindstone when working with the harvester, it is necessary to make a rough grinding or adjustment of the blades when the cutting edge is 5 mm wide or more. Grind the rear edge to an angle of approx. 15°.

Rough grinding can be made by means of an angle grinder with the rotor and blades positioned in the machine.



**CAUTION:** Be careful not to grind down the cutting edge (front edge) of the blades.

**Block the rotor with a firm object (a piece of wood or the like) during rough grinding to make sure that the rotor does not move during this operation.**

## 4. ADJUSTMENTS

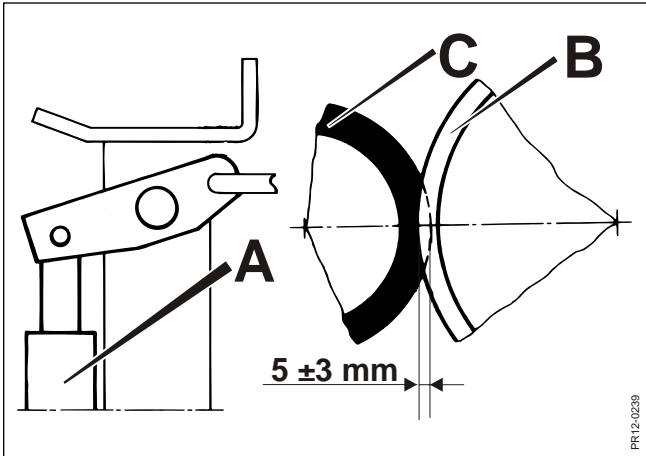


Fig. 4-18

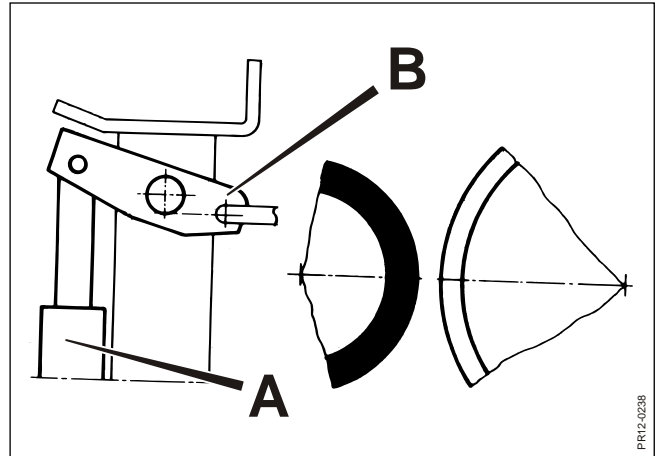


Fig. 4-19

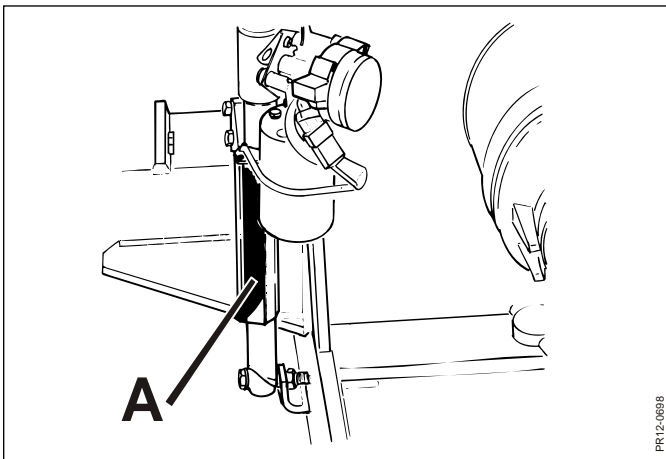


Fig. 4-20

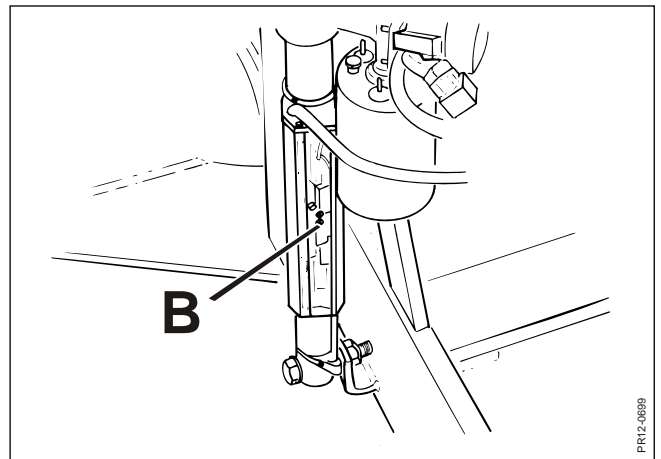


Fig. 4-21

### REVERSE

The reverse function **can** be used at full rpm (1000 rpm on the PTO), but we recommend you to reduce the rpm to relieve the machine as much as possible.

**Fig. 4-18** The overlap between the steel friction disc **B** and the rubber disc **C** must be 5+/-3mm. If the rubber disc is worn, the overlap is adjusted automatically by the electric motor **A**, as it always presses with the same maximum pressure and thus ensures a constant pressure between the two parts **B** and **C**.



**CAUTION:** Only use the reverse function for short periods to ensure correct functioning and long life of the rubber disc.

**Fig. 4-19** The tightening of the V-belt drive is also adjusted automatically. It is determined by the electric motor **A**, which always drives with the same constant power.



**IMPORTANT:** If the tightening of the belt drive is not correct it can be because the bracket **B** which transmits the correct power from the electric motor is too tight or stuck. Disassemble the parts, clean, and grease the rocking mechanism before reassembling the parts.

### NEUTRAL POSITION

FCT 1050 is available in a version with a metal detector (MD) with a special reverse system with neutral position. This neutral position is between the reverse function where the rubber disc and the friction disc are in mesh (fig. 4-18), and normal working position where the belt drive is tightened and drives the feed intake (fig. 4-19).

In neutral position the belt drive for the feed intake section is slackened and it stands still. However, it is not a position which should be considered as standstill of the machine, for instance because the blade rotor still rotates.

In neutral position the distance between the rubber disc and the friction disc should be approx. 2-3 mm. Adjustment of the neutral position is made by moving the 2 contact elements that are placed in the electric motor for the reverse function.

**Fig. 4-20** To get access to the contact elements, the plastic cover **A** on the electric motor must be removed.

**Fig. 4-21** Adjustment is made by moving the 2 contact elements **B** which **MUST** be placed against each other. When the elements are moved upwards, the distance between rubber disc and friction disc is reduced, and if the elements are moved downwards, the distance is increased.

The adjusted neutral position is checked by driving the electric motor in reverse and back to neutral position (NB: from normal intake to neutral position there will be more distance).



**WARNING:** Do not approach the machine when the feed intake is in neutral position and the rotor is rotating. Neutral position does not guarantee that the feed intake will not start.

5. METAL DETECTOR (MD)

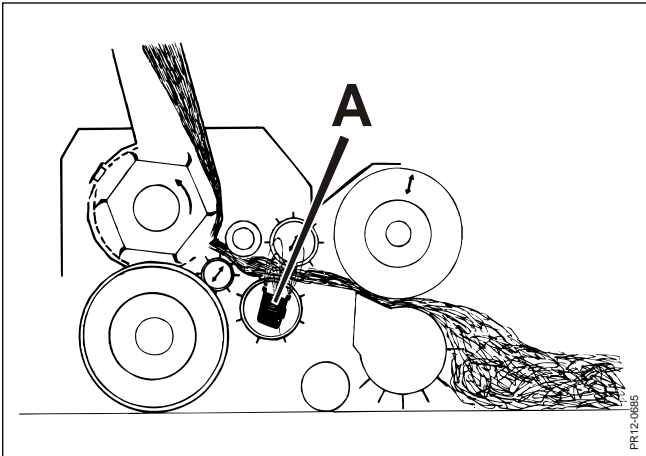


Fig. 5-1

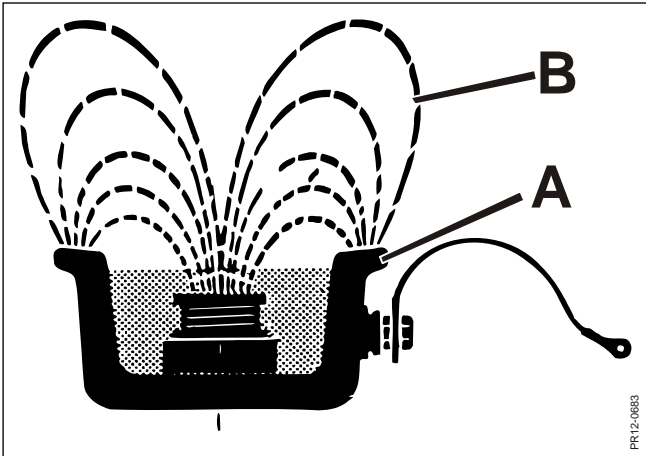


Fig. 5-2

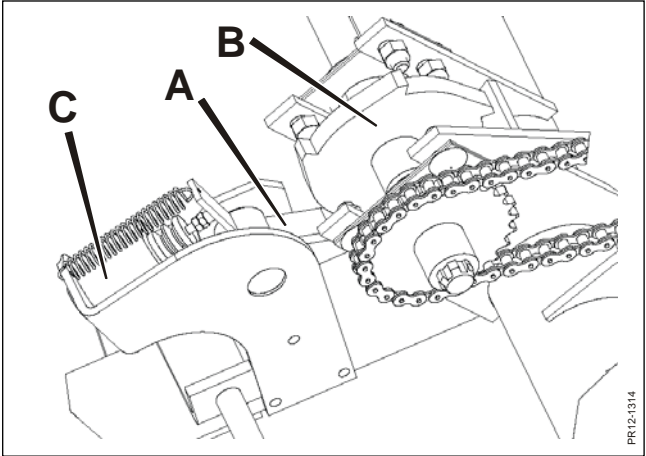


Fig. 5-3

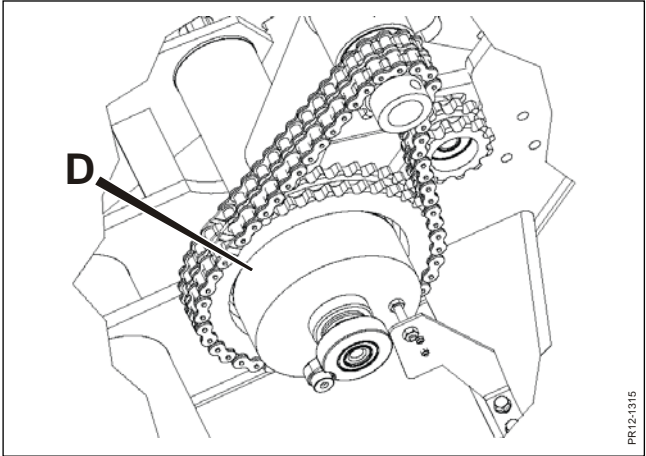


Fig. 5-4

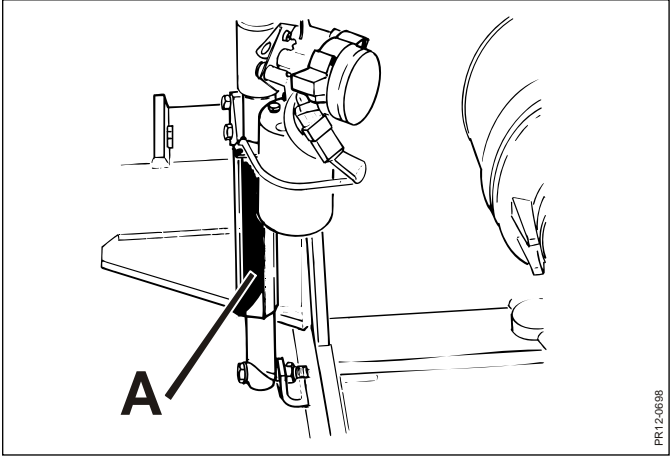


Fig. 5-5

# 5. METAL DETECTOR (MD)

FCT 1050 is available with a metal detector (MD) integrated in the machine.

The purpose of the metal detector is to secure the machine against damage by possible metal in the crop and to ensure that no metal gets in the chopped material as it may cause diseases for the animals which are going to eat it.

In principle the machine is constructed as the standard machine but is equipped with a system which can detect (register) ferrous metal (metal containing iron) in the feed intake section, and immediately stops pick-up, auger and feed intake if metal in the crop enters the front rollers.

## THE MD SYSTEM

### MAGNET TUB (METAL SENSOR)

**Fig. 5-1** The machine is equipped with a magnet tub **A** (a sensor) mounted in the lower front feed roller and its function is to detect (register) ferrous metal (metal containing iron).

**Fig. 5-2** The magnet tub **A** has an upward magnetic field **B**. This magnetic field covers the whole opening between the 2 front rollers.

The accuracy that the sensor registers the metal is approx. 95 %. However, there are several factors which influence the accuracy of the sensor: They are:

- The size of the metal object.
- The shape of the metal object.
- The position of the metal in the feed intake section.
- The cutting length and thus the feed intake speed.
- The distance between the pawl and the ratchet wheel in the stop system.

### REGISTRATION OF METAL

When a ferrous metal piece passes the magnet tub a voltage is induced which is immediately registered by the microprocessor in the electronics box which releases a programmed stop sequence.

### STOP OF THE FEED INTAKE SECTION

**Fig. 5-3** When the metal has been detected, a signal will be sent so that there is voltage on the magnet coil **C**. Hereby the pawl **A** is activated and is engaged with the ratchet wheel **B** and the feed intake is blocked immediately.

**Fig. 5-4** Through this blocking the torque in the transmission is increased immediately and the automatic clutch **D** is released. It glides until the belt transmission is disengaged. This is done by putting the reverse motor **A** fig. 5-5 in neutral. (See below!).

**Fig. 5-5** During the above mechanical blocking of the feed intake the microprocessor sends a signal to the electric motor **A** for the reverse function whereby it moves to neutral position.

## 5. METAL DETECTOR (MD)

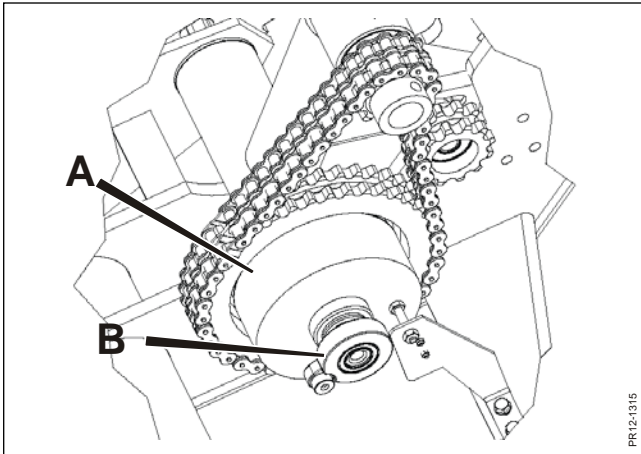


Fig. 5-6

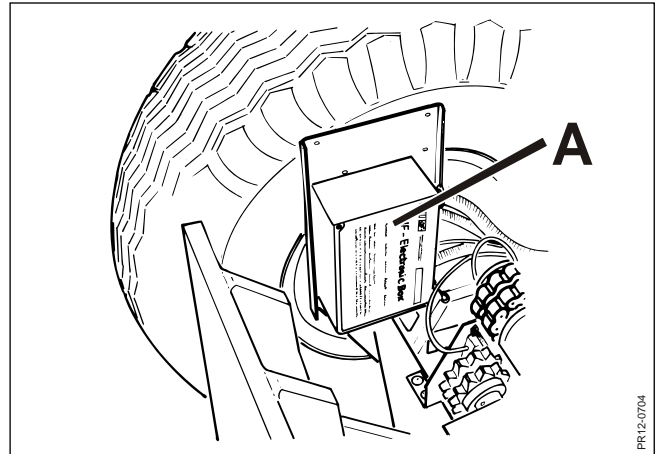


Fig. 5-7

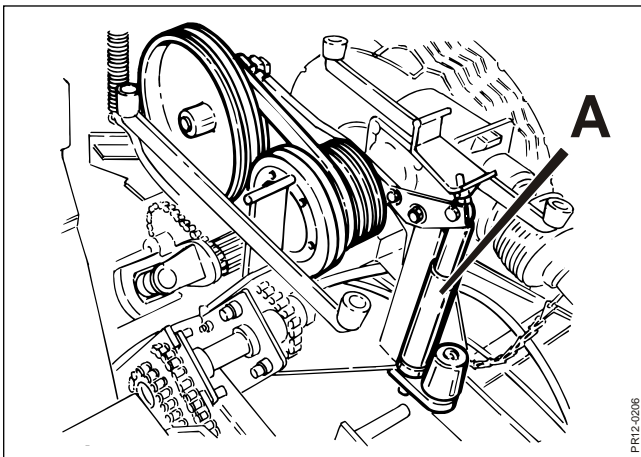


Fig. 5-8

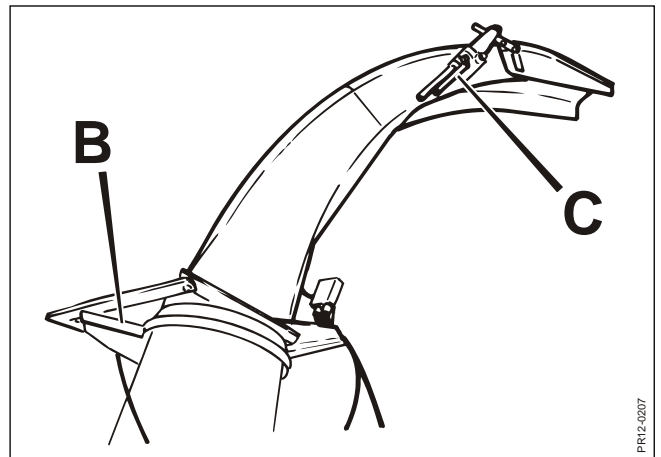


Fig. 5-9

## 5. METAL DETECTOR (MD)

Hereby the V-belts are slackened and the feed intake is deactivated. This can be seen as the neutral gear of the feed intake.

This neutral position is necessary at any disengagement of the friction clutch, as the friction clutch would otherwise be overheated, with risk of damage or replacement.



**WARNING:** Do not approach the machine when the feed intake is in neutral position and the rotor is rotating. Neutral position does not guarantee that the feed intake will not start.

### RESETTING OF THE METAL DETECTOR

**Fig. 5-6** To secure against misuse after a metal detection and to ensure that possible metal has been removed before restarting, the electronics does not allow normal feed intake function until the feed intake has reversed.

During reverse the clutch **A** drives a magnet switch **B** around. Hereby a signal is sent to the microprocessor that you have reversed and the stop system with the pawl will reset.



**CAUTION:** When the machine has reversed after a metal detection, check the area in front of the feed roller for possible metal pieces and remove these.  
If nothing is found there is a risk that the metal enters the feed intake again together with the crop when restarting the machine. Pay special attention when restarting the machine after metal detection.

## ELECTRONICS

### ELECTRONICS BOX

**Fig. 5-7** The electronics box **A** which is placed under the left rear guard contains a printed circuit board with relays and a microprocessor. The microprocessor is equipped with a programme which controls the electronic components of the machine and carries out the commands of the tractor driver or the metal detector of the machine. To protect the electronics a 2-ampere glass fuse (2AF 250V, IEC 127-2-2) has been mounted on the electronics box which is accessible without opening the box.



**WARNING:** Opening of the electronics box or replacement should only be performed by an authorised JF dealer / Service technician.

### POWER SUPPLY

**Fig. 5-8** The reverse function, the swivel chute and the deflector on the chute are controlled by electric motors (**A**, **B** and **C**).

**Fig. 5-9** The motors are controlled from a control panel mounted in the tractor cabin.

5. METAL DETECTOR (MD)

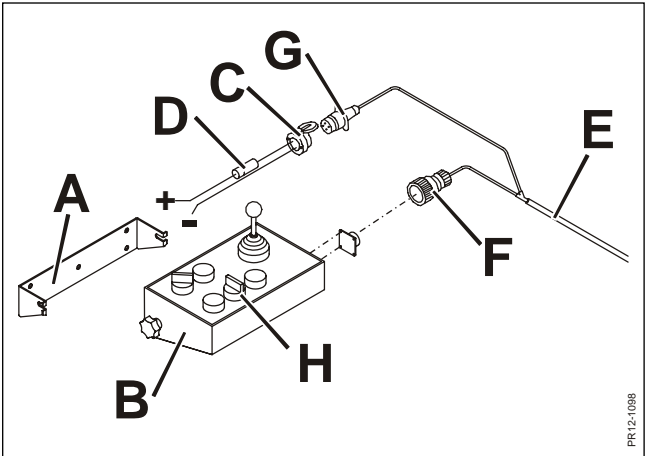


Fig. 5-10

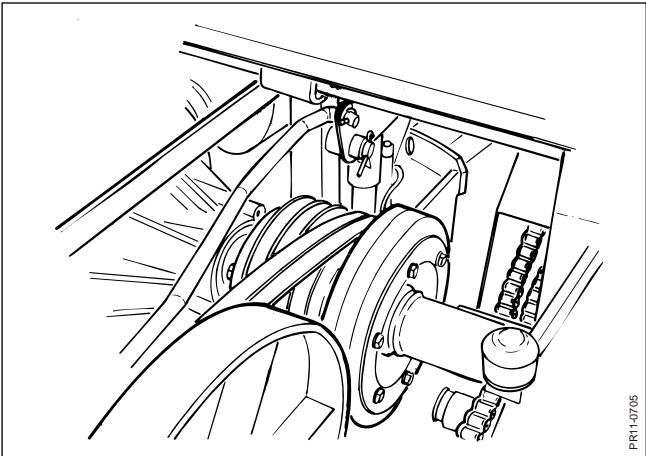


Fig. 5-11



## 5. METAL DETECTOR (MD)

**Fig. 5-10** Mount the holder **A** for the control panel in a suitable place within the reach of the tractor driver and mount the control panel **B**. Mount the 3-pole socket **C** on the power supply cable somewhere in the tractor cabin. Connect the cable directly to the tractor battery, i.e. connect the cable with the fuse box **D** to **+**(positive) on the battery (remember that the fuse must be placed near the battery). The cable has a strong conductor to ensure minimal voltage drop and thus optimal function and life of the electric components of the machine. The fuse is a 25 ampere fuse (25A DIN 72581-1).



**CAUTION:** On few tractor types there is a 3-pole outlet. It is very important for the functioning of the electric system that there is a good connection to **-(negative/earth)** and **+(positive)** on the battery.

On the electronics box on the machine there is a 16-conductor cable **E**. This cable is placed along the drawbar together with hydraulic hoses.

2 plugs are mounted on the cable. A multiple plug **F**, which must be connected at the side of the control panel **B** and a 3-pole plug **G** which must be connected to the 3-pole socket on the power supply cable.



**CAUTION:** It is very important for the functioning of the electric system that there is a good connection to **-(negative/earth)** and **+(positive)** on the battery. We advise you not to connect to for instance the wiring of the lights as the wire thickness for these systems is usually not sufficient to transfer the necessary power.

Subsequently it is easy to dismount the electric equipment in the cabin if you are not going to use it for a considerable period of time.



**CAUTION:** When the electric equipment is dismounted and not in use for some time it must be stored in a dry place and the electric plug on the machine must be wrapped up or placed under a shield.

## THE REVERSE SYSTEM

The reverse function was described in the section REVERSE in chapter 4 "ADJUSTMENTS". The following is a description of the special conditions for the reverse function on MD machines.

**Fig. 5-11** The reverse function of the machine has 3 positions: Feed intake, neutral and reverse. The system is controlled from the control panel in the cabin and by the microprocessor. On the control panel the switch **H** (on fig. 5-10) is for operation of the reverse system. From the control panel a control current is sent to the electronics box on the machine which then connects the main current on the relay to the wanted function.

With the switch on the control panel you can change between the 3 positions:

- 1) When turning the switch to the right in position "feed intake" the machine is ready for work.
- 2) If the switch is placed in the middle, "neutral position", no control current (for feed intake or reverse) will be sent to the electronics of the machine and the reverse motor moves from the position in question to neutral position.
- 3) If the switch is turned to the left in position "reverse" the feed intake moves in the opposite direction and the crop is reversed out.

## 5. METAL DETECTOR (MD)

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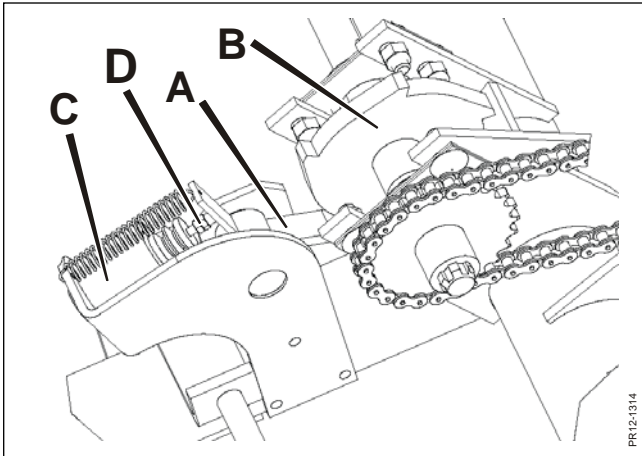


Fig. 5-12

## 5. METAL DETECTOR (MD)

Note: This position for the switch is with spring return, i.e. the switch moves to neutral position as soon as you let go of it.



**WARNING:** Do not approach the machine when the feed intake is in neutral position and the rotor is rotating. Neutral position does not guarantee that the feed intake will not start.

The electronics controls the reverse system in the following situations:

- When the electric system is turned on: The reverse motor moves to neutral position.
- When metal is registered: The reverse motor moves to neutral position and cannot move to feed intake until the machine has reversed.
- When the belt drive has obtained correct tightening (feed intake position): The power to the motor is disconnected.
- When the friction disc has obtained correct pressure on the rubber disc (reverse position) The power to the motor is disconnected.

## ADJUSTMENTS

### RATCHET STOP

**Fig. 5-12** Machines with metal detector have an integrated stop system in the transmission for the feed intake system. The system consists of a pawl **A** and a ratchet wheel **B** which are activated by a coil **C**. The system is activated when metal is registered in the feed intake section and the coil gets a signal from the electronics which brings the pawl **A** in mesh with the ratchet wheel **B** and the feed intake section is blocked.



**WARNING:** The distance between the pawl and the wheel **MUST** be 1-2 mm as the distance determines the reaction time of the system in case of metal detection. Too large distance may mean that a metal object can reach the blade rotor before the feed intake stops and cause serious damage to the harvester.

The distance between pawl and wheel has been adjusted correctly from the factory. If it becomes necessary to readjust it is done by means of the adjusting screw **D** above the coil **C**.

## FAULT FINDING FOR MD

In chapter 12 in this book "FAULT FINDING" is a table for fault finding on the MD system. The table contains the most known faults, possible cause and remedies.

## 6. DRIVING IN THE FIELD

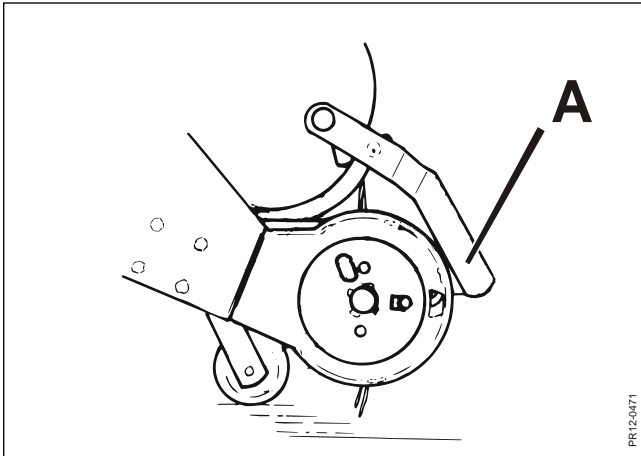


Fig. 6-1

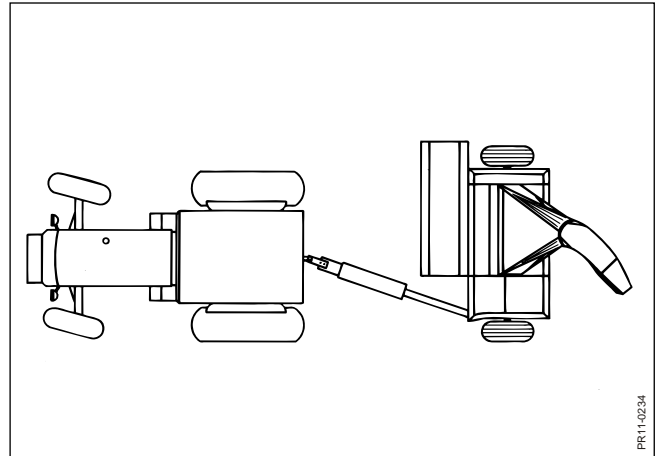


Fig. 6-2

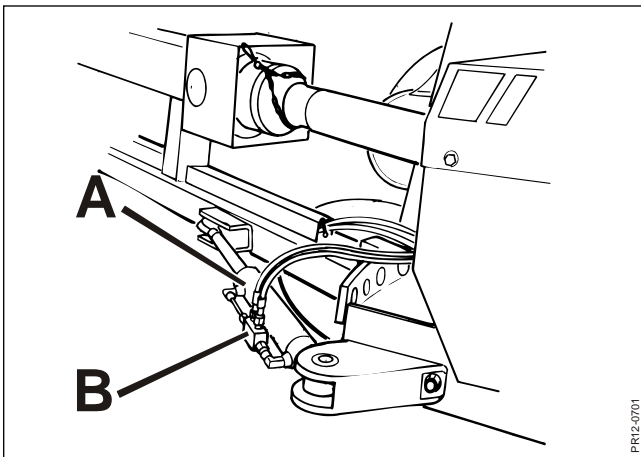


Fig. 6-3

# 6. DRIVING IN THE FIELD

## GENERAL CONDITIONS

Adjust the machine to the maximum cutting length acceptable for the crop in question. This will reduce the stress in the feed intake section and the transmission and increase the possibility of working with the machine continuously without blockages.

Always work with sharp blades and correctly adjusted shearbar. Be aware that an adjustment for short cutting length not only demands increased power but also causes increased wear of blades.

**Fig. 6-1** The feed intake plate **A** above the pick-up should be dismantled when working in heavy and strong crops as the auger can easily pull the crop into the feed intake section under such conditions. At the same time you will have optimal preconditions for problem-free reverse out of the auger as the feed intake plate **A** usually tends to prevent the crop from being reversed freely out of the auger. See also the section "REVERSE" in chapter 4.

Under difficult conditions we recommend you to bring spare friction discs for the slip clutch on the auger as the pre-adjusted torque on a slip clutch falls gradually when it is activated and the wanted power cannot be transmitted. When replacing discs remember that they must be of the same number and quality so that the wanted torque can be transmitted and to secure maximum life.

## SWATHING BEFORE CHOPPING

If it is possible to influence the swathing made before chopping it is important to emphasise that regular and even swaths are optimal for the subsequent chopping and will spare the tractor driver a lot of trouble.

The machine is equipped with a wide pick-up and if you want to use the capacity of the machine through double swathing, it is desirable to place 2 swaths just beside each other within the width of the pick-up instead of raking. Raked swaths are often irregular and the crop tangled which may cause blocks in the auger and/or feed intake section.

Therefore, double swaths are optimal for a regular flow of crop through the machine.

## TRANSPORT POSITION

**Fig. 6-2** In transport position the machine must be placed behind the tractor.  
**Fig. 6-3** If the machine is fitted with equipment for hydraulic transport adjustment, the drawbar can be placed in transport position with the hydraulic cylinder **A**. The cylinder is fitted with a safety valve **B** which ensures that the machine stays in transport position in case of hose breach.

When driving on public road the delivery chute must be in a position where it does not increase the transport width of the machine.

## 6. DRIVING IN THE FIELD

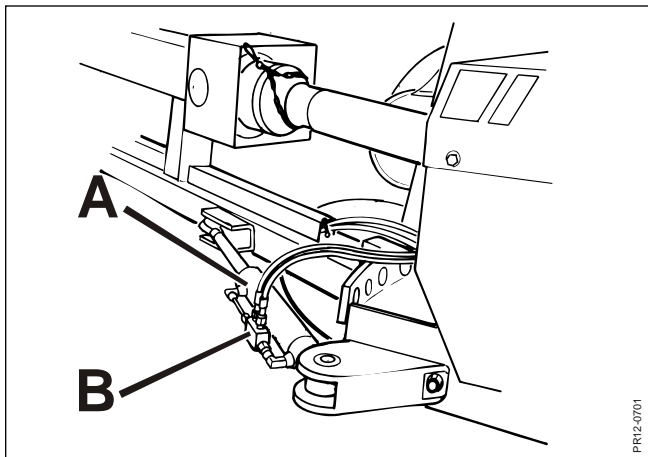


Fig. 6-3

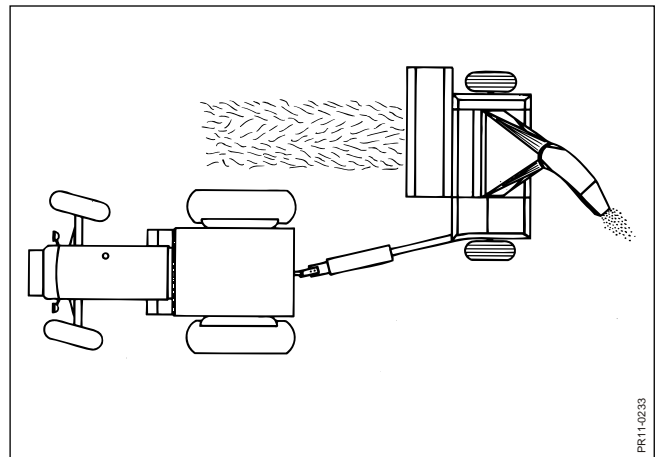


Fig. 6-4

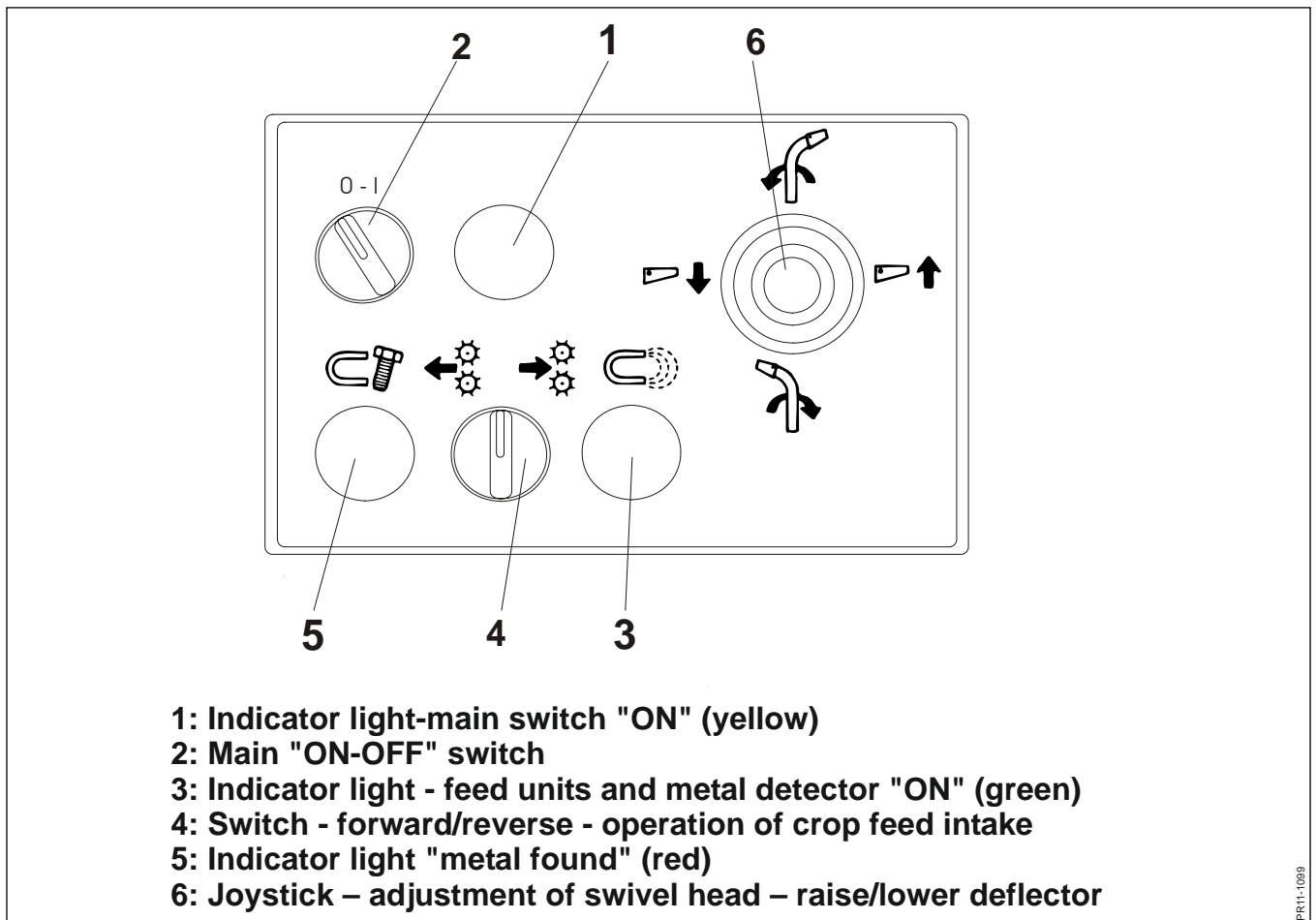


Fig. 6-5

### WORKING POSITION.

**Fig. 6-3** With hydraulic conversion to transport position the drawbar can be adjusted continuously with the hydraulic cylinder **A** and can work in all positions.

**Fig. 6-4** The position of the drawbar can be changed during working to avoid an obstacle or the like.  
For sharp turns to the right it is also recommended to place the drawbar in transport position.

### STARTING AND WORKING IN THE FIELD

There are differences in the starting procedures of a standard machine and a machine with metal detector (MD). On MD machines the electronics and the metal detector must be activated and checked before starting. Therefore the special procedures when starting MD machines are described first. Most of the procedures when starting and working in the field are in principle the same for the two models, and when there are differences the descriptions are divided into "*Standard machines*" and "*MD machines*".

#### STARTING MD MACHINES

**Fig. 6-5** Place the machine in working position. Turn on the electronics by means of the On/Off switch **(2)** on the control panel.

##### Lights on the control panel:

- The yellow light **(1)** indicates that the electronics is on.
- The green light **(3)** indicates that the machine is working with normal feed intake and that the metal detector system is activated.
- The red light **(5)** indicates that the machine is in "metal found" status. i.e. the electronics has registered metal and the system has reacted (the pawl blocks the ratchet wheel and the reverse system is in neutral position).

When the electronics is turned on, the yellow light **(1)** and the red light **(5)** are on, and the reverse system is in neutral position.

Connect the power take-out (only the chopping rotor rotates) and move the feed intake to reverse with the switch **(4)** until the red light **(5)** turns off (the electronics has registered that you have reversed).

Turn the switch **(4)** to feed intake, and the green light **(3)** now indicates that the metal detector is in operation.

Disconnect the power take-off again and turn off the engine, but do NOT turn off the electronics of the machine. Test the functioning of the detector by moving a large metal piece across the front feed roller.

## 6. DRIVING IN THE FIELD

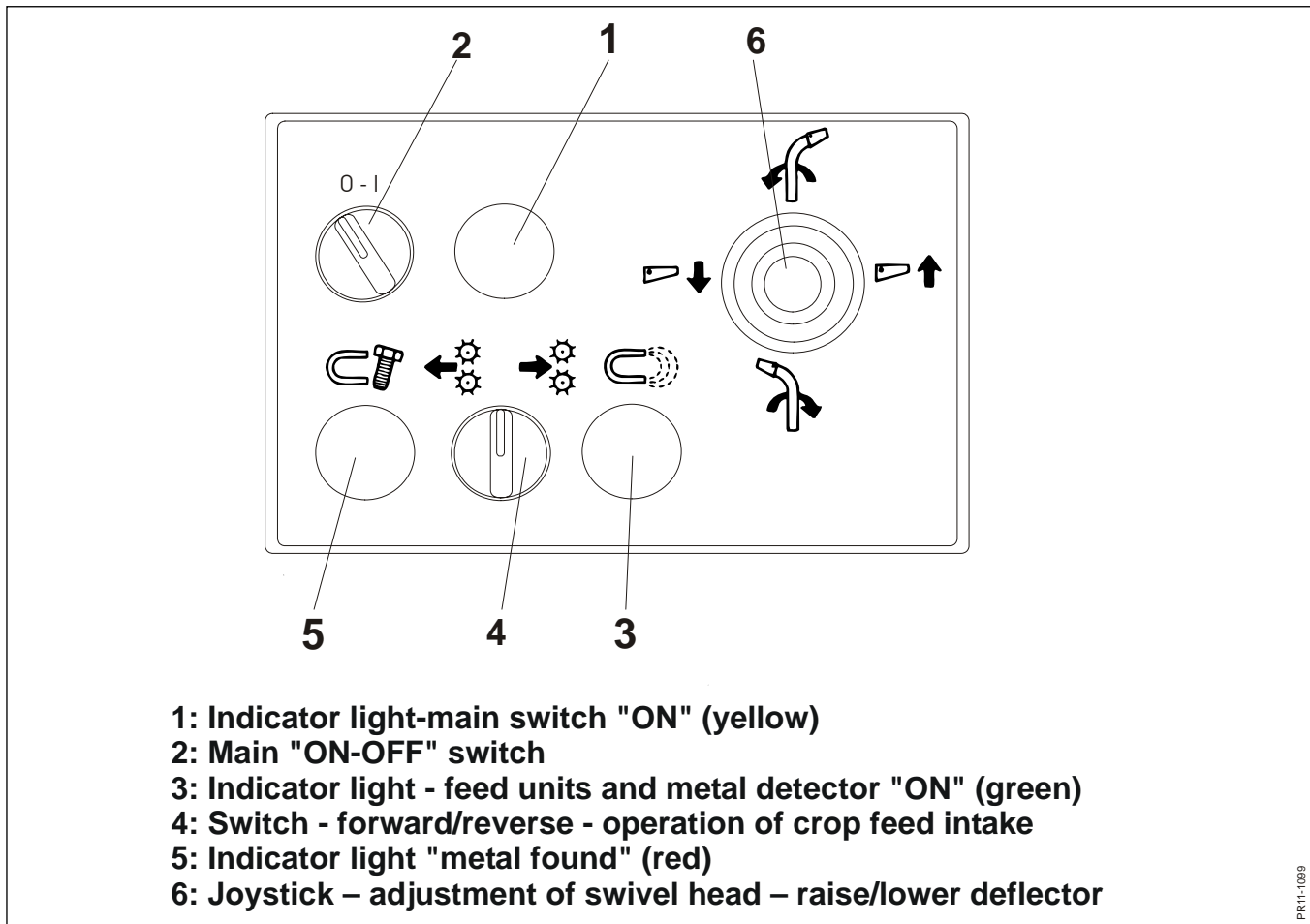


Fig. 6-5

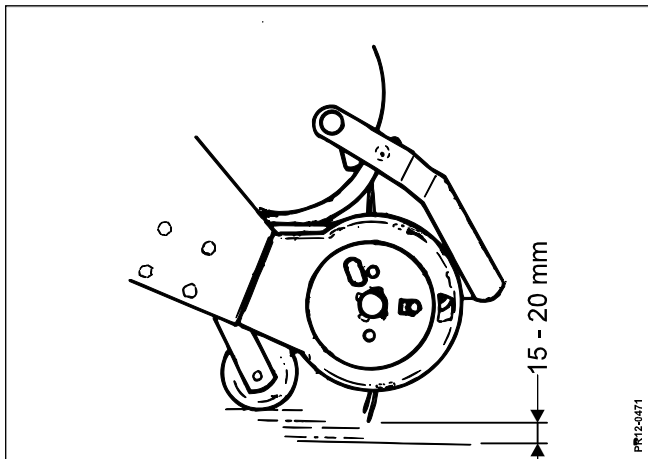


Fig. 6-6



## 6. DRIVING IN THE FIELD



**WARNING:** Do not approach the machine when the feed intake is in neutral position and the rotor is rotating. Neutral position does not guarantee that the feed intake will not start.  
Do not approach the machine until the blade rotor has come to a complete stop.

**Fig. 6-5** When the metal detector has registered metal, the reverse system moves to neutral position and the red light (5) on the control panel is on again. The detector has now been checked, and the machine is made ready for work as described above until the green light (3) is on.

### CONTINUED STARTING PROCEDURE FOR ALL MACHINES

Gradually increase to the correct number of rpm -1000 rpm on the PTO. Drive slowly into the crop and increase the forward speed as long as the tractor can keep the required number of revolution of approx. 1000 rpm.

An inexperienced operator should always work with a capacity reserve in the machine to avoid problems with the flow through the machine.



**IMPORTANT:** Always make sure that the tractor can keep the correct number of revolutions of 1000 rpm on the PTO. This ensures a regular load of the machine and you avoid torque increases (in case of reduced rpm) which wears the safety clutches and the transmission.

To obtain optimal pick-up function it is important that:

- The crop enters the machine regularly and that you, if possible, drive in the opposite direction of the mower conditioner.
- The forward speed is adjusted to the amount of crop and is not so high that blockage is frequent.
- You drive as straight as possible into the crop and are aware of this when turning in the field.

**Fig. 6-6** The pick-up is fitted with support rollers of steel which are adjustable in height. From the factory the wheels have been adjusted so that there is 15-20 mm space between the tines and an even and firm ground. Check regularly that the pick-up tines do not reach further down than necessary to be able to pick up the swath efficiently. If the tines hit the ground too hard they are quickly worn and the drive of the pick-up may be overloaded.

### BLOCKAGE IN THE MACHINE

#### Auger and feed intake section:

In case of blockage in the auger or the feed intake section activate the reverse function **immediately** by moving the switch to neutral position (*Standard* = toggle switch, *MD* = ON/OFF switch (4) on fig. 6-5) on the control box in the tractor, and reduce the number of revolutions.

Hereby the auger and the feed intake stop immediately, and you can obtain an overview of the situation.



**WARNING:** Do not approach the machine when the feed intake is in neutral position and the rotor is rotating. Neutral position does NOT guarantee that the feed intake will not start.

## 6. DRIVING IN THE FIELD

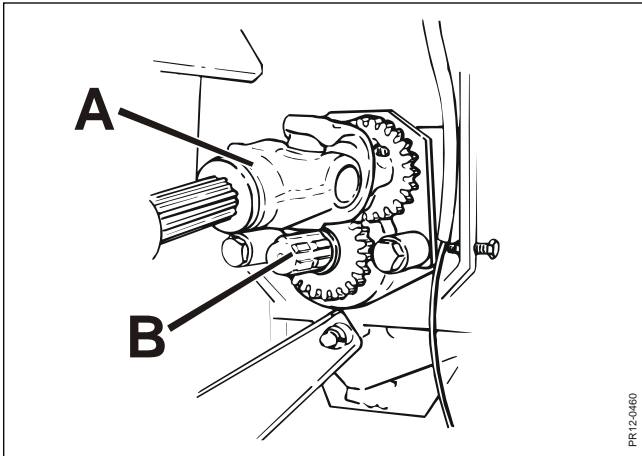


Fig. 6-7

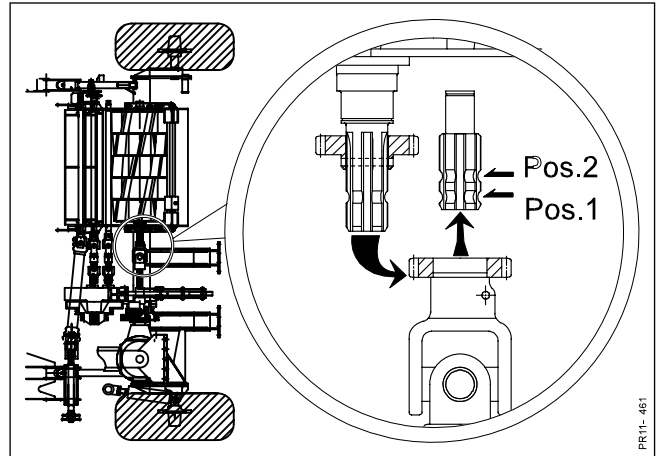


Fig. 6-8

## 6. DRIVING IN THE FIELD

### *Standard machines:*

Now place the reverse system in reverse position at a low number of rpm, with the switch on the panel, and reverse the material out of the machine.

After reversing move the reverse system back to normal feed intake at a low number of rpm. When the machine runs correctly, increase to correct number of rpm, and the work can be resumed.

### *MD machines:*

Turn the forward/reverse switch on again, and the electronics has ensured that the reverse system stays in neutral position. The electronics is now in position for "metal found" as the red light is on and the machine must be reversed before the work can be continued. See the description in the above section "STARTING MD MACHINES" in this chapter.

### **The rotor**

In case of blockage in the rotor, activate the reverse function **immediately**, by moving the switch on the control panel in the tractor to neutral position and the power transmission is immediately turned off.

To enable the feed rollers to pull the material out of the rotor, it must be disconnected during reverse. The procedure is as follows:

- 1) Go to the machine when the power take-off is disengaged and the motor has come to a complete standstill.



**DANGER:** Do not approach the machine until the rotating parts have come to a complete stop and be aware that neutral position does not guarantee that the feed intake will not start.

**Fig. 6-7**  
**Fig. 6-8**

- 2) Move the PTO shaft **A** for the rotor to the alternative pin in **pos. 1** where the gear wheels are not in mesh. Thereby the rotor is not driven.



**WARNING:** It is important that the PTO shaft is **NOT** moved to **pos. 2**, where the rotor rotates in the opposite direction. This position is used for grinding, or for reverse in case of blockage in auger or feed intake section.

**Fig. 6-7**

- 3) Connect the power take-out again at low number of rpm and move the reverse function to reverse position with the toggle switch on the control panel and reverse the material out of the machine.
- 4) After reversing disconnect the tractor's power take-out again, the tractor is stopped, and the PTO shaft **A** for the rotor is moved back to the pin **B** for driving the rotor.
- 5) With the reverse function in neutral **it is now normally possible** to "blow" the cut grass, which is in the rotor housing out of the chute, unless this is also blocked. In order to "blow the rotor housing empty" it is necessary to increase the number of revolutions to its maximum.
- 6) The reverse function is being brought back to normal.
- 7) When the machine runs, increase to correct number of rpm and the work can be continued.

## 6. DRIVING IN THE FIELD

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## 6. DRIVING IN THE FIELD

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### METAL DETECTION DURING WORKING

In case the magnet tub in the front lower feed roller registers metal, the metal detection system ensures that the feed intake stops immediately as described in the section THE MD SYSTEM in chapter 5 "METAL DETECTOR (MD)".

Hereby the red light on the control panel is on, and you must do as follows:

- 1) Turn off the rpm of the tractor immediately and reverse a couple of meters.
- 2) Now the material can be reversed out of the intake area, after which the red lamp is turned off. It is recommended to drive backwards during reverse to facilitate the operation and spread out the material.
- 3) Disconnect the power take-out and stop the tractor engine.



**WARNING:** Do not approach the machine when the feed intake is in neutral position and the rotor is rotating. Neutral position does not guarantee that the feed intake will not start.  
Do not approach the machine until the blade rotor has come to a complete stop.

- 4) When the blade rotor has stopped, remove the metal piece from the reversed material.  
Be aware that small pieces may fall out at the rear lower roller.

**Alternatively:** Lift the pick-up and drive forward over the crop which has been reversed out of the machine, then start picking up grass from the swath again. The amount of crop with metal that has been left can be picked up at the end after metal has been found.

- 5) When the metal has been found, the feed intake section can be started and the work is continued.

### AFTER WORK

When you have finished working with the machine, always place the reverse system in neutral position. Hereby the belts on the V-belt drive are slackened.



**WARNING:** If an MD machine is stopped with the reverse system in position for normal feeding and you start the machine **WITHOUT** turning on the power to the control panel, the machine will not be able to work in the intake.

## 7. MAINTENANCE

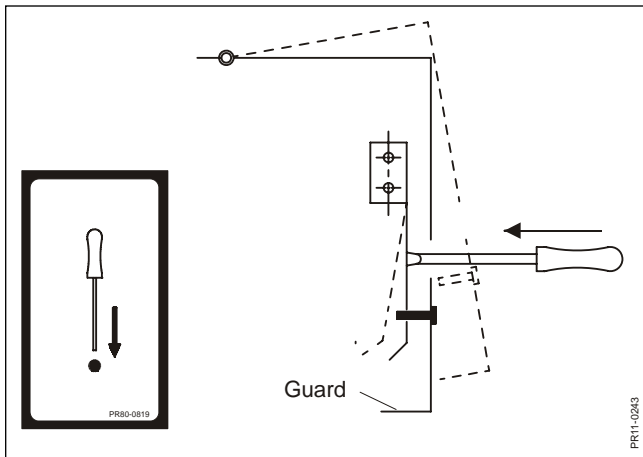


Fig. 7-1

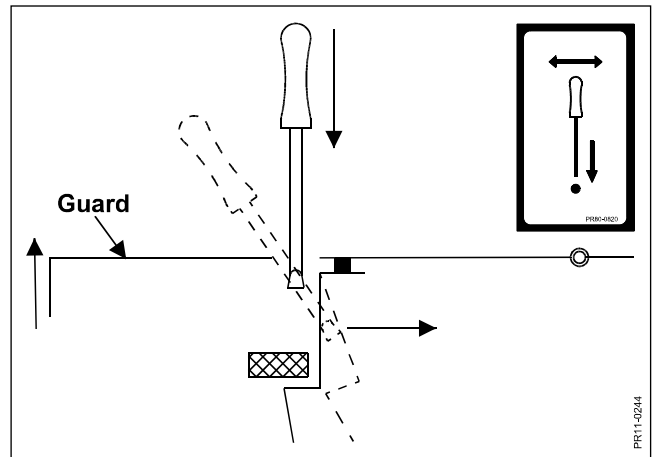


Fig. 7-2

# 7. MAINTENANCE

## IN GENERAL



**WARNING:** When repairing or maintaining the machine it is especially important to ensure correct personal safety. Therefore, always park the tractor (if mounted) and the machine according to the **GENERAL SAFETY INSTRUCTIONS** items 1-20 in the beginning of this instruction manual.



**IMPORTANT:** Screws and bolts on your new machine must be retightened after some hours of operation. This also applies if repairs have been made.  
Especially the bolts for the blades on the rotor must be retightened carefully.

Torque moment **M<sub>A</sub>** for bolts on the machine (if nothing else stated in this instruction manual).

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

## GUARDS

**Fig. 7-1** When maintaining the machine you often need to open or remove guards.

**Fig. 7-2** For safety reasons all guards have been equipped with a lock. The lock ensures that the guard cannot be opened without using tools. Fig. 7-1 and 7-2 show the two different locking principles and the corresponding transfers which indicate and illustrate the locks on the machine.

## 7. MAINTENANCE

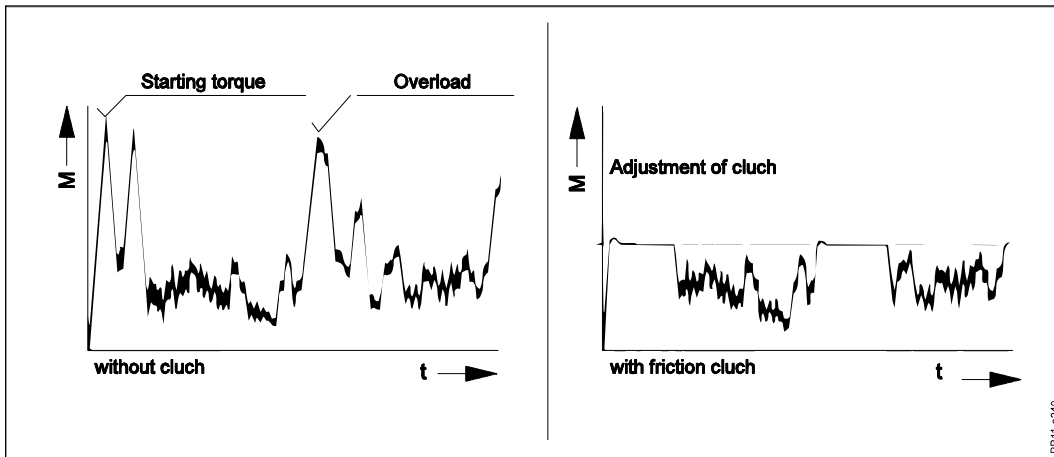


Fig. 7-3

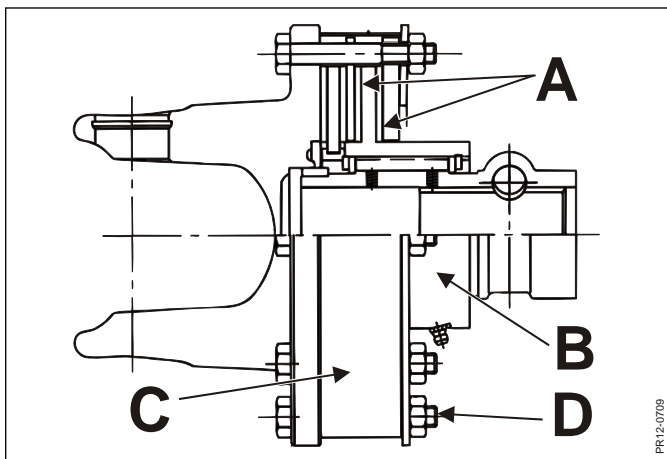


Fig. 7-4

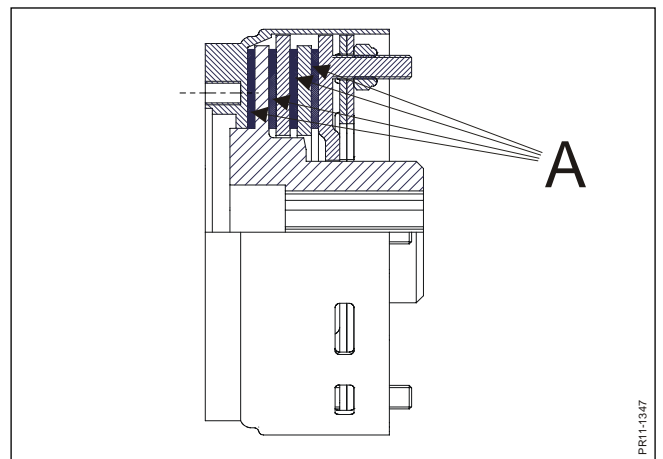


Fig. 7-5



### REPLACEMENT OF BLADES

See description for replacement of blades in the rotor and the subsequent adjustment in the section REPLACEMENT AND ADJUSTMENT OF BLADES in chapter 4 "ADJUSTMENTS".

### TYRE PRESSURE

FCT 1050 is as standard equipped with wide tyres which provides a good carrying capacity and thus a low ground pressure. However, wider low profile tyres for driving in areas with less carrying capacity are available as optional equipment.

The below table indicates the recommended tyre pressure.

FCT 1050	Tyre dimension	Tyre pressure with trailer	Tyre pressure without trailer
Machine (Standard)	14.0/65-16/10	Maximum 2.80 bar	Minimum 0.8 bar
Machine (Optional equipment)	19.0/45-17/10	Maximum 2.25 bar	Minimum 0.8 bar
Rubber wheels for pick-up (Optional equipment)	3.50-6/4	3.0 bar	3.0 bar



**CAUTION:** Check the tyre pressure regularly and make sure that the wheel-fixing bolts are tightened correctly.

### FRICITION CLUTCH

**Fig. 7-3** In order to ensure a long life for your tractor and machine, the machine is delivered with a friction clutch on the PTO drive shaft at the rear end of the drawbar and on the driving mechanism for the feed rollers. The figure illustrates how the clutch protects the transmission against high torque peaks and at the same time is capable of transmitting the torque while it is in function (slips).

The auger is also fitted with a friction clutch as described in the section PICK-UP in chapter 4 "ADJUSTMENTS".

The friction clutches must be maintained at regular intervals. At the same time, the clutches must be checked if they have not been in operation for some time. This especially applies after winter storage before the machine is used for the first time in the season.

#### Maintenance of the friction clutch on the PTO drive shaft:

- Fig. 7-4** 1) Disassemble the clutch and clean all parts of possible rust.
- Fig. 7-5** 2) Check the clutch discs **A** for wear and replace if required.
- 3) Clean and grease the freewheel clutch **B**.
- 4) Assemble and mount the clutch again. See also the instruction manual for the PTO drive shaft delivered by the supplier.

## 7. MAINTENANCE

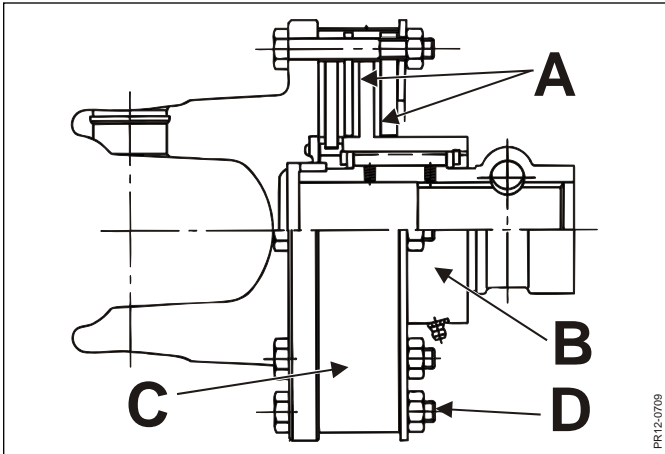


Fig. 7-6

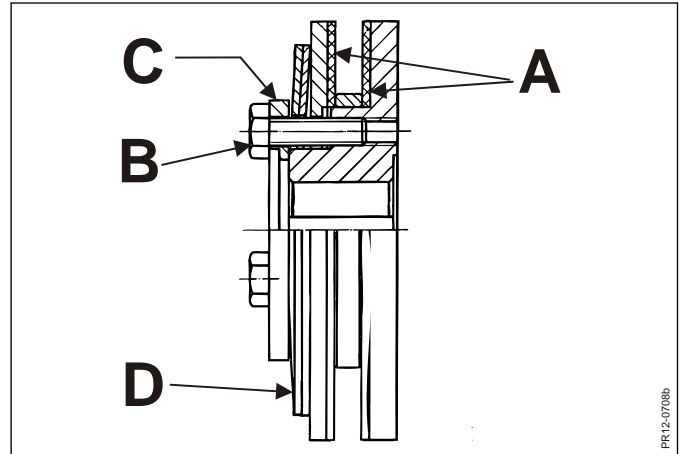


Fig. 7-7

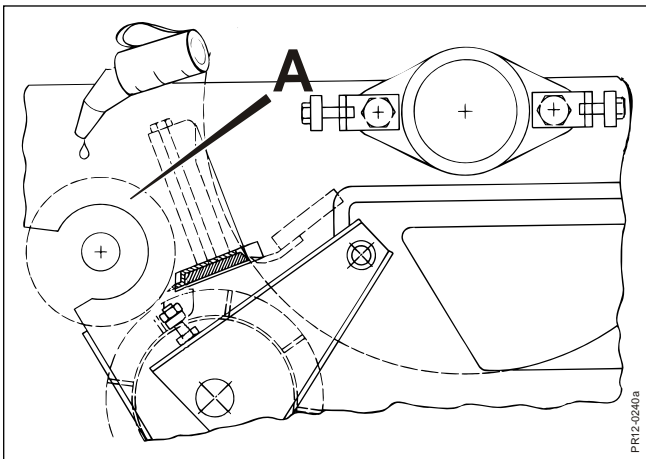


Fig. 7-8

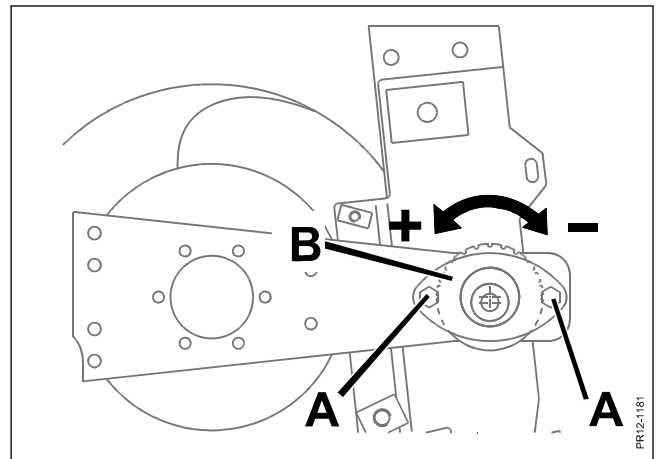


Fig. 7-9

- Fig. 7-4** **IMPORTANT:** The outer metal band **C** indicates whether the tightening of the springs is correct. Tighten the bolts **D** just so much that the metal band **C** can be turned (max. 0.5 mm play).  
The torque setting is not correct if the metal band is too tight or deformed due to excessive tightening of the bolts.



### Maintenance of the friction clutch on the auger:

- Fig. 7-6**
- 1) Disassemble the clutch and clean all parts of possible rust.
  - 2) Check the clutch discs **A** for wear and replace if necessary.
  - 3) Assemble and mount the clutch again. Tighten the bolts **B** with normal torque as the flange **C** ensures the correct compression of the springs **D** and thus the correct torque setting.



**WARNING:** If the clutch is overloaded by slipping for some time, it will get heated and thus be worn quickly.  
Overheating will damage the friction plates. If the clutch is blocked or partly put out of function in other ways, the factory guarantee will be discontinued.

## MISCELLANEOUS

### Rollers

- Fig. 7-8** The upper rear feed roller, the smooth roller **A**, should be secured against formation of rust on the surface. If the machine is not in use for more than one day, the whole surface should be lubricated with some oil.

### Electric motors

If the machine is not in use for a longer period, and in the winter time, it is recommended to pull the spindle on the electric motors in to avoid formation of rust. When dismantling the control panel in the cabin it should be stored in a dry and warm place.

The plugs on the cables of the machine must be placed under a guard or wrapped up to protect against wind and weather. They can be treated with spray.

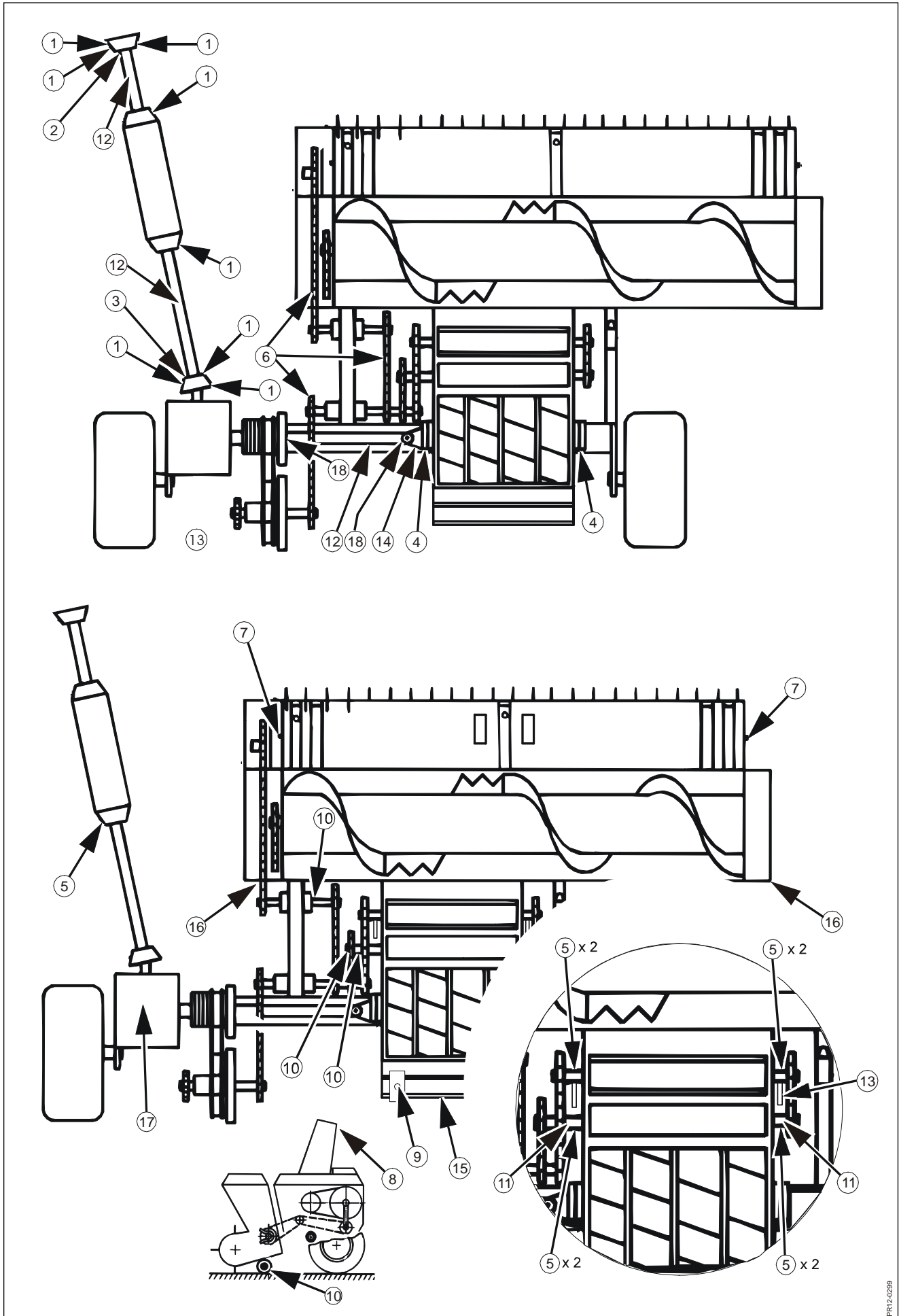
### Chain tightener for pick-up auger

- Fig. 7-9** Two bolts **A** are loosened after which the eccentric **B** can be turned with a screwdriver or the like. It is turned in + direction for tightening and in – direction for loosening.



**CAUTION:** It should always be possible to move the chain at least 20 mm up and down in the middle.

## 8. GREASING



PR12-0298

# 8. GREASING

### Once a day:

4	Rotor bearings	2
5	Feed rollers	8
6	Chains (grease with thin oil/chain saw oil)	8
18	Transmission shaft at rotor	2

### Twice a week:

1	Universal joint on PTO drive shafts in the drawbar	8
2	Wide angle joint	2
3	Freewheel	1
12	Profile tubes on PTO shafts	3
7	Bearings for tube in the pick-up	2
8	Swivel chute	4
9	Grinding device	1
10	Support rollers	3
11	Link bearings in rocker arms	2
13	Hitch (Optional equipment)	2
14	Alternative pin for transmission shaft at rotor (grinding/blocking)	1
15	Steering device for grindstone (rust-preventing oil)	2

### Once a year:

16	Support arm for pick-up	2
----	-------------------------	---

### 17 Bevel gear box:

- **Oil type:** Quality API GL4 or GL5 SAE 80W-90
- **Oil content:** 4.5 litres
- **Oil change:** After the first 10 working hours and then once a year.

# 9. STORAGE (WINTER STORAGE)

When the season is over, the preparation for winter storage should be made immediately after. First, clean the machine thoroughly. Dust and dirt absorb moisture and moisture increases the formation of rust.



**CAUTION:** Be careful when cleaning with a high pressure cleaner. Never spray directly on the bearings and grease all grease points carefully after cleaning so that possible water is pressed out of the bearings.



**IMPORTANT:** Grease all grease points after cleaning the machine.

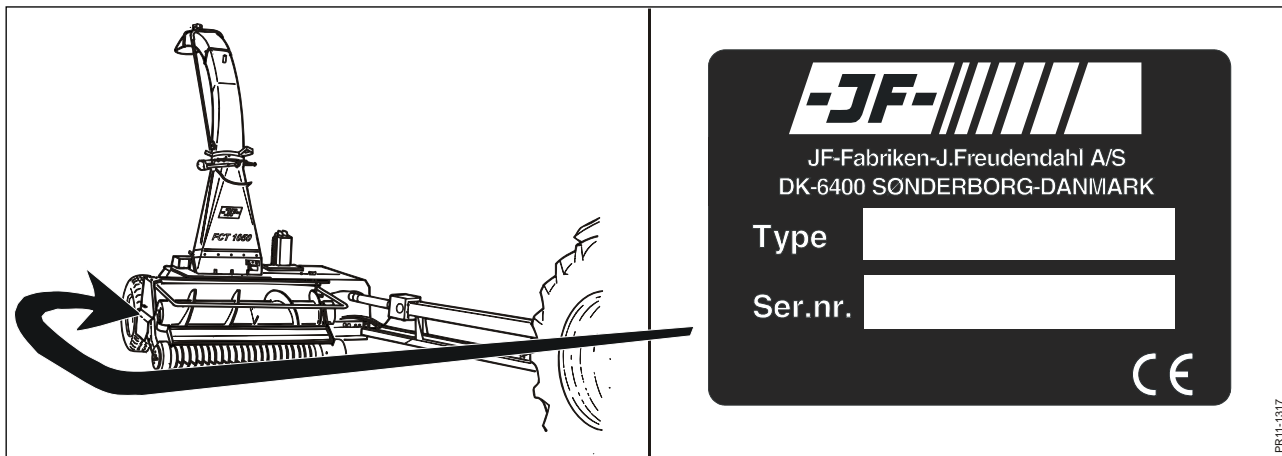
The following points are instructions how to prepare for winter storage.

- Check the machine for wear and other defects – note down the necessary parts you will need before the next season and order the spare parts.
- Dismount the PTO drive shafts, lubricate the profile tubes and keep them in a dry place.
- Spray the machine with a thin coat of rust-preventing oil. This is especially important on the parts polished with use.
- Change the oil in the hydraulic system and the gearboxes.
- Store the machine in a ventilated engine house.
- Lay up the machine to unload the tyres.

## 10. SPARE PARTS ORDER

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

This information is printed on the machine plate. We request you to write this information on the first page in the spare parts catalogue supplied with the machine as soon as possible after delivery so that you have the information at hand when ordering spare parts.



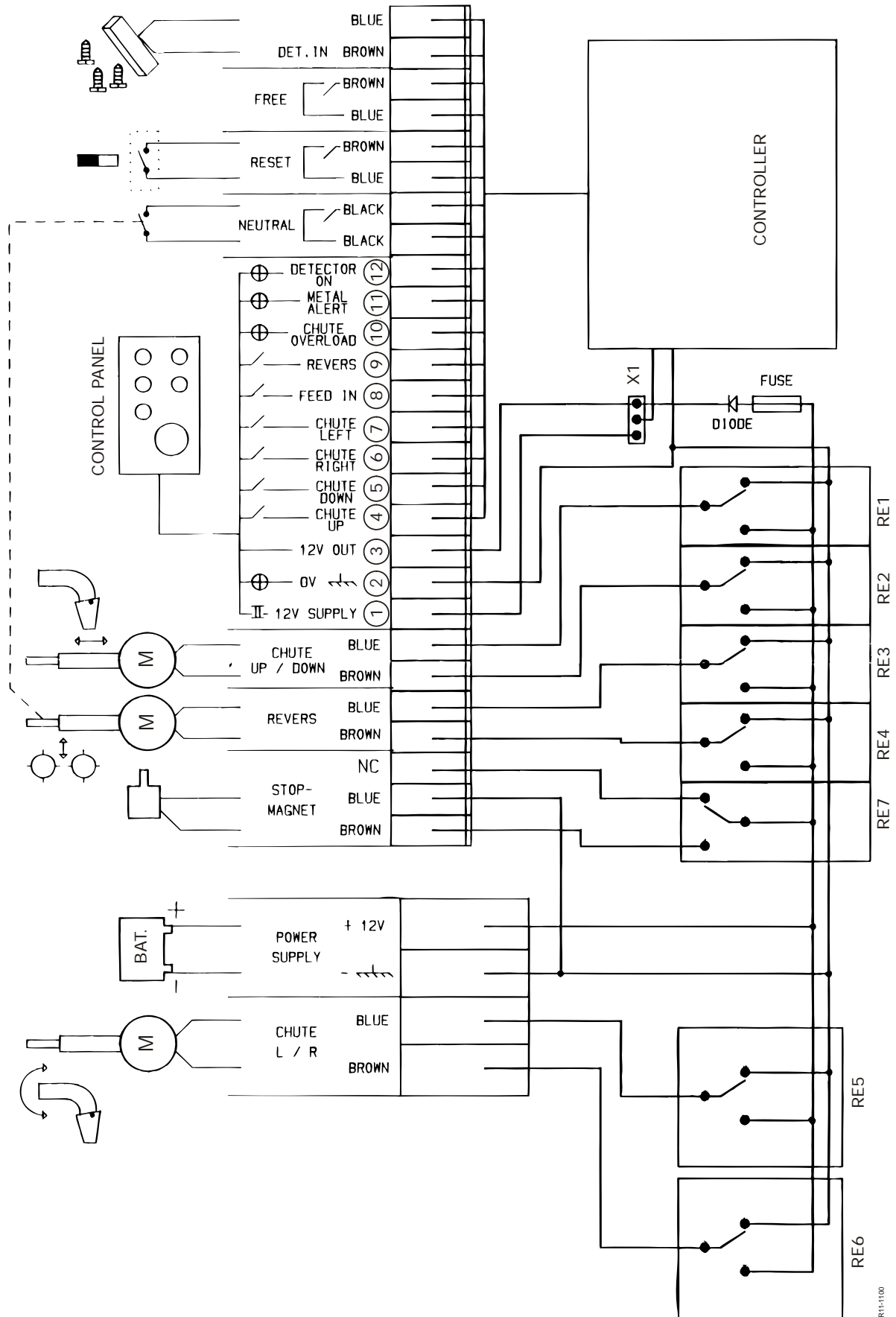
## 11. DISPOSAL

When the machine is worn-out it must be disposed of in a proper way.

Observe the following:

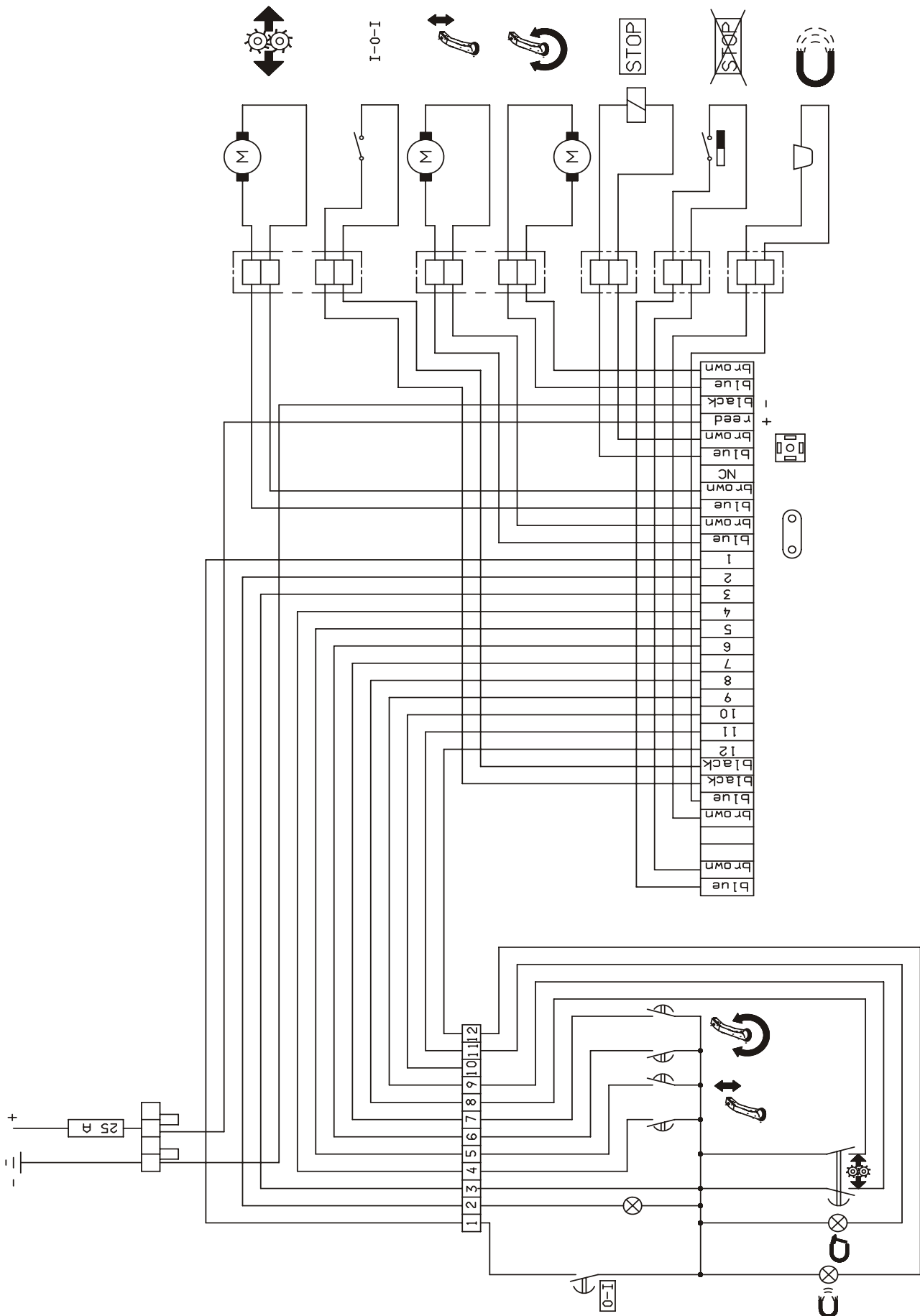
- The machine must **not** be placed somewhere outside.
- Gearboxes, cylinders, and hoses must be emptied of oil. These oils must be handed over to a destruction company.
- Disassemble the machine and separate the individual parts, e.g. PTO drive shafts, tyres, hydraulic components etc.
- Hand over the usable parts to an authorised recycling centre. The large scrapping parts are handed over to an authorised breaker's yard.

## 12. FAULT FINDING





# ELECTRIC DIAGRAM FOR FCT-1050 MD



PR11-1316

# 12. FAULT FINDING

## ELECTRIC DIAGRAM:

The figure on the opposite page shows the electric diagram for the machine. Here you can follow the cabling between the components, for instance when maintaining or replacing cables.

## FAULT FINDING (MD)

In the below table the most known faults in the metal detector system are described. The table describes the possible cause and what you can do to correct it.



### CAUTION:

**If you are in doubt about how to handle a possible fault in the MD system, always contact a JF dealer or JF importer for professional instruction. Thus you avoid working with a defective system.**

Problem	Possible cause	Remedy
The electronics is not activated when turning on the control panel with the ON/OFF switch.	1) A fuse has blown either in the electronics box on the machine or in the power supply cable. 2) Damage on one or more of the cables has caused short circuit.	1) Replace the fuse(s). 2) Check the cable connections and repair/correct if necessary.
No metal is registered when the MD system is checked with ferrous metal between the front rollers before starting or metal goes through the feed intake section without being detected.	1) Fault or defect on the magnet tub. 2) The cable connection to the magnet tub is defective. There is no power on the control panel for the MD system (and the last time, the work was ended with the reverse system in position for normal feeding).	1) Return the magnet tub to JF-Fabriken for readjustment or replacement. 2) Correct/repair defect on the cable connection. 3) Make sure that there is power on the control panel in the cabin each time you start the machine (the yellow light in the box is on).
Metal reaches the rotor although it is detected and the feeding stops.	The distance between the pawl and the ratchet wheel is too long, and the wheel turns too much before the pawl is in mesh.	Adjust the distance between the pawl and the ratchet wheel with the adjusting screw above the coil. The distance must be approx 1 mm and max. 2 mm.

## 12. FAULT FINDING

Problem	Possible cause	Remedy
After detection, the feed intake section stops because the reverse system moves to neutral position and the belts are slackened and not as usual because the pawl catches the ratchet wheel and blocks the feed intake.	The cable connection to the coil for the pawl is defective.	Correct the fault on the cable connection.
It is not possible to reverse after the pawl has been activated after detection and is in mesh with the ratchet wheel.	The cable connection to the electric motor for the reverse system is defective.	Correct the fault on the cable connection.
It is not possible to adjust the reverse system to position for normal feeding after reversing.	There is a fault on the contact element at the nylon disc on the automatic clutch. The contact element must reset the electric system after reverse so that the machine can work again.	Replace the contact element on the automatic clutch.
Metal is detected, but there is no metal in the feed intake section.	<ol style="list-style-type: none"> <li>1) The adjustment of the magnetic field from the magnet tub has been changed.</li> <li>2) There are loose metal parts/swarfs in the roller which disturb the magnetic field.</li> <li>3) The voltage supply from the tractor is not sufficient. The MD system "regards" reduced voltage drop (under 8 V) as a disturbance, i.e. metal detection.</li> </ol>	<ol style="list-style-type: none"> <li>1) Dismount the magnet tub and send it to JF-Fabriken where it will be adjusted.</li> <li>2) Clean the roller and the tub of loose metal parts/swarfs.</li> <li>3) Check if the voltage supply from the tractor is correct – 12 V.</li> </ol>

# 13. WARRANTY

## MD MACHINES

FCT 1050 can from the factory be delivered with an electronic metal detector system (MD) which registers ferrous metal parts the moment they pass the sensor in the lower front feed roller.

During tests in the field with a range of common metal parts it has been possible to detect 95% of the parts and stop the feed rollers before the blade rotor of the machine has been damaged seriously.

Though an MD cannot stop foreign matter such as: Stone, wood and tools made of chromium-nickel steel, it will provide a considerably higher safety against damage and operational stop as most wearing parts from agricultural machinery which may be lost in the field are made of metal. Furthermore there will be a higher security that there are no metal parts in the chopped crop for the herd.

**The following special warranty rules apply to machines delivered with an MD from JF-Fabriken A/S:**

- The MD manufactured by JF-Fabriken A/S is additional equipment which can only be delivered to some specific models from JF-Fabriken A/S.
- The MD will register a ferrous metal part the moment it passes the front feed roller of the machine, and immediately after it will send an electrical signal to a control unit which will block the feed intake section by means of a signal to an electrically activated stop system before the metal part reaches the blade rotor. The MD can only register ferrous metal parts (metal parts containing iron). Tests have shown a registration guarantee of 95 %.
- All the components of the MD which have defects in material or manufacturing faults when delivered to the first buyer will be repaired or replaced free of charge for parts or pay if a warranty claim has been sent to one of JF-Fabriken A/S's authorised dealers without undue delay. However, this does not apply if the fault does not occur until 12 months after delivery or if the general submission time for warranty claims is not observed.  
However, the warranty does not apply to damage caused by normal wear, accidents for which nobody is at fault, insufficient maintenance, inadequate storage or unintended use. General maintenance and replacement costs must still be paid by the buyer.
- The warranty will be invalidated if the construction or adjustment of the equipment is changed to an extent which has not been approved by JF-Fabriken A/S.
- As the MD cannot register all common magnetic metal parts no guarantee can be given for damages as a result of faulty registration or blockage.

### IN GENERAL

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

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

- The warranty is invalidated in the following cases:

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

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

JF is not responsible for the following costs:

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

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

The following is regarded as wearing parts:

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

In addition, the user must note the following:

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







## Specialist in grassland machinery and complete diet mixers

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

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

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

Dealer

# **JF-STOLL**

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