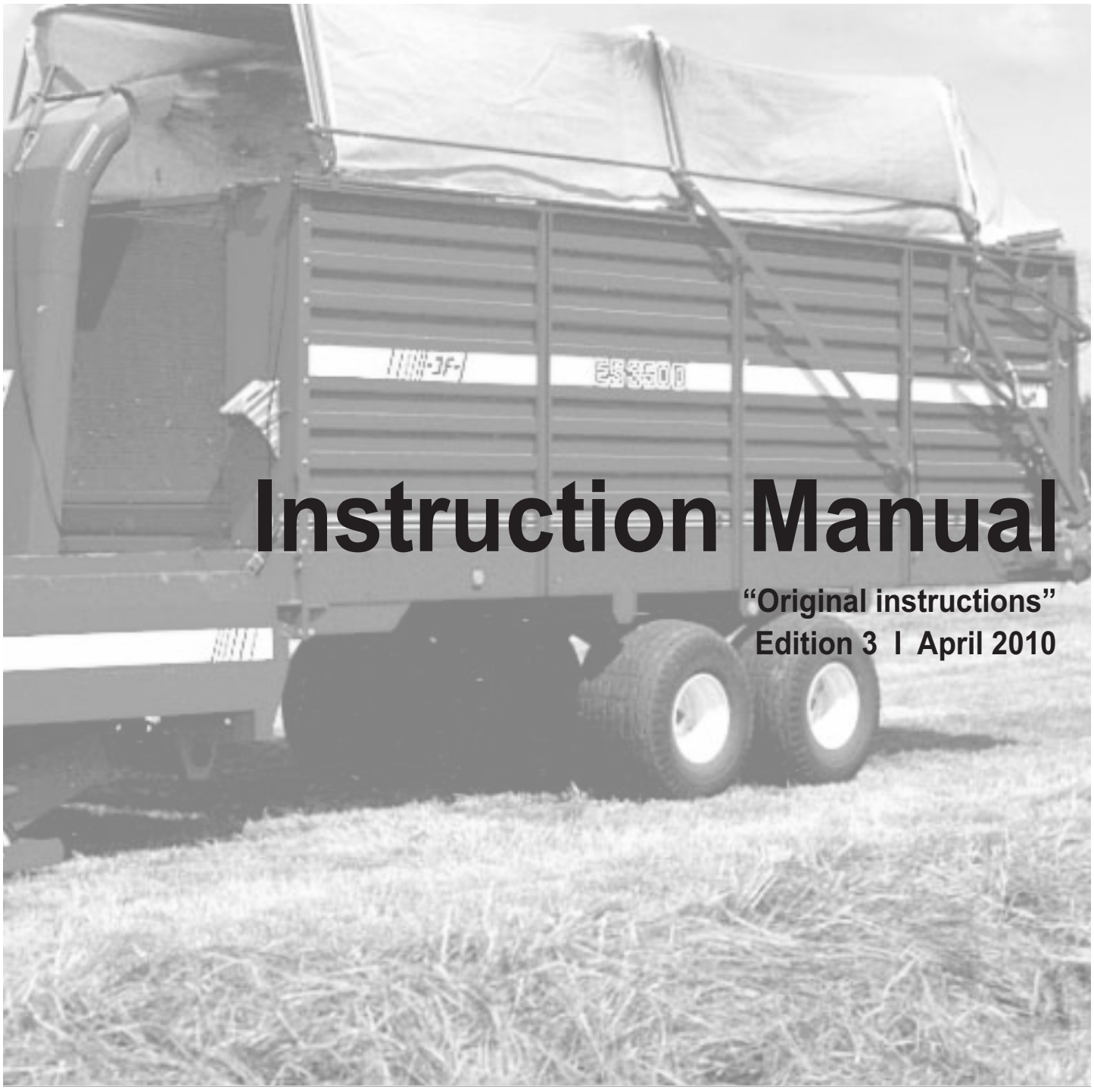
JF-STOLL

Chopping section for Chop Forage Wagon

ES 3500



Instruction Manual

“Original instructions”

Edition 3 I April 2010

JF-STOLL

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

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

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

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

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

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

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

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

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

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

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

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EN declare under our sole responsibility, that the product:
DE erklären in alleiniger Verantwortung, dass das Produkt:
IT Dichiara sotto la propria responsabilità che il prodotto:
NL verklaren als enig verantwoordelijken,dat het product:
FR déclarons sous notre seule responsabilité que le produit:
ES declaramos bajo resposibilidad propia que el producto:
PT declaramos com responsabilidade próqria que o produto:
DA erklærer på eget ansvar, at produktet:
PL deklarujemy z pełną odpowiedzialnością, iż produkt:
FI ilmoitamme yksin vastaavamme, että tuote:

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

ES 3500

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

2006/42/EC

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

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

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

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

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

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

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

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

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

CE

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

FOREWORD

DEAR CUSTOMER!

We appreciate the confidence you have shown our company by investing in a JF machine. Of course, it is our wish that you will experience a 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 the technically correct use of the machine.

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

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

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

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

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

CONTENTS

1. INTRODUCTION

INTENDED USE

The precision chop forage wagons **ES 3500 and ES 2500** are solely constructed for the usual work in agriculture, i.e.:
They are only intended for cutting, picking up and chopping of green crop such as maize, grass and whole crop, which is to be used for the production of silage intended for feed for cattle and sheep.

The machines should only be connected to a tractor that considers the specifications of the product and is legal to use.

Any use beyond the above-mentioned does not make JF-Fabriken responsible for any possible secondary damages; the user bears that risk.

It is assumed that the work is performed under reasonable conditions, including that the fields have been cultivated normally and to a reasonable extent been cleaned of foreign matter and the like.

Intended use also means that the information prescribed by JF-Fabriken in the instruction manual and the spare parts book is observed.

The precision chop forage wagons ES 3500 and ES 2500 must only be used, maintained, and repaired by persons who after reading this instruction manual are confident with the machines in question and thereby informed about possible risks.

It is absolutely necessary to observe the following instructions to prevent injuries and damages. Also common technical safety rules and road safety rules **must** be observed.

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

PERFORMANCE

Compared with other similar products this machine has a very high capacity resulting from the fact that it uses the “DIRECT CUT” system. “DIRECT CUT” means the smallest possible loss of power during the chopping of the material and thereby ensures the best utilisation of the accessible tractor power.

However, capacity is difficult to define and to compare, as the precision chop forage wagon not only is dependent on which crop is cut, but also how the crop has been treated before it is gathered or cut by the machine and finally which cutting length adjustment the machine works with.

For instance with a precision chop forage wagon, which in fresh, not pre-dried grass works up 100 tons/hour, it is possible to calculate the capacity at different dry matter per cents dependent on the pre-treatment before the cutting, as the following table shows:

	DRY MATTER	CAPACITY
Dry matter	100%	18 ton/h
Rainy wet, new grass	15%	120 ton/h
Not pre-dried grass	18%	100 ton/h
Pre-dried grass – no sap from the clamp silo	25%	72 ton/h
Pre-dried grass – no sap from the high tower silo	33%	55 ton/h
Very pre-dried grass	50%	36 ton/h
Straw, very dry	90%	20 ton/h

It might surprise most people that the capacity can vary between 20 and 120 ton/h, because of the varying water content.

In practice you want to drive **ES 3500** or **ES 2500** in the highest possible tractor gear without causing frequent blocking. The quantity of grass in a field will always vary – it might be a place where the mower is forced to make a turn, to change its forwarding speed or to change the direction of travel. Therefore, it is often appropriate either to drive with a power reserve in order not to have the machine blocking at the wrong moment or continuously to adjust the driving of the machine according to the conditions.

The pick-up unit and the feed rollers are secured against overload as a result of a blockage by a friction clutch. The feed rollers also have a reverse position, which makes it possible to remove a block without leaving the comfort of the tractor seat.

It is the intention that the untrained user in the beginning will increase the forward speed gradually until the pick-up is blocked; then releases the blockage again by reversing and chooses a tractor gear, which is an appropriate step lower in order to remove the risk of another blockage.

On the other hand, it is not the intention that the friction clutch of the feed rollers is released. If this happens the clutch adjustment of the pick-up must be reduced. This will also apply if the main friction clutch between the tractor and the machine is released by normal operation. If it is not the pick-up unit that is blocked the machine is not adjusted correctly.

Unfortunately, it has been seen before that the torque adjustments of the friction clutch of the pick-up have been increased until it is the main friction clutch between the tractor and the machine that is released frequently. The main friction clutch is not intended to release frequently, but only for initial start shocks or if foreign matters get into the machine. This also goes for the friction clutch for the feed rollers. The main clutch is simply not able to absorb the heat, which is generated by long-lasting releases. The power, which is transferred at the main clutch, will be at least 10 times higher than the power, which it takes to run the pick-up unit.

The pick-up unit is the only thing you can see from the tractor seat and should therefore be the first to be released when there is a blockage. The experienced user will be able to adjust the tractor to the quantity of grass and thereby work with less capacity reserve and, other things being equal, a larger output.

The cutting length of the machine can be adjusted to the crop, which is to be treated. It is common that the cutting length is reduced when cutting maize and whole crop in order to ensure a larger crushing of the crop kernels. The shorter cutting adjustment will obviously require more power, and that will result in a reduced output as regards maize and whole crop than by grass, even if it is difficult to compare these materials.

Furthermore, the power requirements are increased concurrently with the fact that the blades are worn and the adjustment of the shearbar is changed. It is necessary to grind the blades and adjust the shearbar during the season.

SAFETY

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

A precision chop forage wagon 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 the user of the machine pay attention and use the machine correctly and thereby avoid exposing yourself and others to unnecessary danger.

The machine is only intended for one type of use, i.e.:

Chopping of grass and corresponding green crops to be used for feeding purposes, and collection of the same.

It is assumed that the work is performed under reasonable conditions, including that the fields have been cultivated normally and to a reasonable extent been cleaned of foreign matter and the like.

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

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

DEFINITIONS

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

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

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

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

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

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

GENERAL SAFETY INSTRUCTIONS

Before use, the operator should make sure that the tractor and the machine observe the general work-related legislation and can comply with the Road Traffic Act.

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

1. Always disengage the PTO drive shaft, activate the parking brake of the tractor and stop the tractor engine before you:

    - lubricate the machine
    - clean the machine
    - disassemble any part of the machine
    - adjust the machine.

2. Always block the wheels before you work 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. Never work until all guards have been mounted correctly.

6. During work never wear loose clothes, which can be pulled in by the movable parts of the machine.

7. In order to avoid operation of the hydraulic tip device for the drawbar when driving on public roads it must be secured by closing the ball valve positioned between the two cylinders.

8. Do not change a guard or work with the machine if some of the guards are missing.

9. Always drive with the statutory lights and safety marking during transport on public road.

10. Limit the transport speed to max 25 km/h, unless the machine has been marked otherwise.

11. Never stay near the machine while it is working.

12. When mounting the PTO drive shaft check that the number of revolutions and the direction of rotation match those of the tractor.

13. Always use hearing protectors if the noise from the machine is trying 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 anyone to stay on the machine while it is working or being transported.

15. Never use the machine for other purposes than what it has been constructed for.

16. Never work with the machine when children are near the machine.

17. Never stay between the tractor and the machine or trailer during connection and disconnection.

18. Do not lead the crop into the chopper by your hands or feet while the machine is working.

19. Do not feed material into the cutting unit while it is working.

20. If the crop is to be removed from the chopper, the PTO must first be completely disengaged. In case of doubt, stop the tractor engine before removing crop from the chopper.

21. Guards should be checked regularly.

22. The field should, if possible, be cleaned of stones and foreign matter.

23. In case of any doubt, please contact the nearest dealer.

24. Never stand on the machine while the conveyor chain is activated. This also goes for cleaning of the machine. It is very dangerous when the trailer floor is slippery.

25. Never activate the conveyor chain if anyone is standing on the machine.

CHOICE OF TRACTOR

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

Choose a tractor with a suitable power on the PTO drive shaft. If the power of the tractor is considerably larger than the normal demand of the machine considerable and long lasting overload can damage the machine.

Choose a tractor with a suitable own weight and track width so that it can drive steadily on the ground. Also make sure that the lift suspension, the hitch and the drawbar of the tractor are intended to work with the weight in question.

However, the tractor specifications vary a lot within the single tractor brands. Therefore, it can be necessary to use front weights on the front of the tractor.

Always choose a tractor with a closed cabin if you are going to work with a precision chop forage wagon.

The machine is intended for 1000 RPM. Therefore, make sure not to use a wrong RPM on the power take-out.

CONNECTION AND DISCONNECTION

Always make sure that nobody is standing between the tractor and the machine during connection or disconnection. An unintentional manoeuvre can cause persons to be jammed (see fig. 1-1). Likewise, it is important that the disconnection takes place on level and stable ground to avoid that the machine "runs off" and injures persons or damage the equipment.

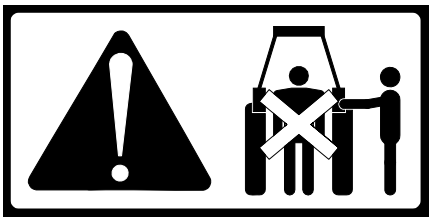

Fig. 1-1

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

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

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

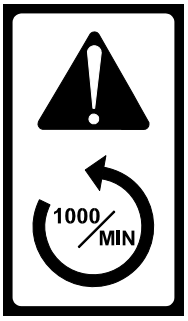

Fig. 1-2

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

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

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

Fig. 1-3

ADJUSTMENT

When adjusting the machine, always:

- Disengage the PTO drive shaft
- Stop the tractor engine
- Wait until all moving parts have come to a complete stop.

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

If the cutting knife or blade of the blade cylinder are to be adjusted or replaced it is important to block the blade cylinder by a wooden wedge. Otherwise, the sharp blades can easily injure a couple of fingers, especially because it is difficult to stop the rotor if it has been started by accident.

Before you start to work check that the feed rollers and the blade cylinder can move freely. Also check that the blades are intact and without cracks. It is of course necessary to replace defect blades to avoid that they block or damage the machine later or lead to metal parts being thrown out of the delivery chute.

Regularly check if the blades and the blade bolts are worn according to the rules stated in the instruction manual.

The first time you use the machine the blade bolts might get stuck and result in insufficient tension of the blades. Therefore, you should check the tension of the blade bolts after just 1 working hour.

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

TRANSPORT

Limit the transport speed to max. 25 km/h, unless the machine has been marked otherwise.

Check that the mechanical locking devices by the hydraulic hitch are engaged before you start to transport the machine.

To remove possible air in the oil, test all the hydraulic cylinders after engagement to the tractor. Especially before driving on public roads.

The precision chop unit (pick-up etc.) must also be secured mechanically before transport.

Of course, the statutory lights and the safety markings must also be positioned correctly. Clean regularly the reflector markings and the lights.

WORKING

Before you start working, make sure that there is nobody behind the chopper that can be hit by metal parts from damaged blades.

Also make sure that there is nobody in the trailer used to pick up the grass. The person might suffocate in the flow of grass or get hit by metal parts in the flow.

The conveyor chain of the trailer is very strong. Therefore, take care not to get stuck in the conveyor chain. It takes a lot to block it.
Be also aware of the flow of the conveyor chain underneath the trailer floor.

When driving with the machine keep a safe distance from slopes and the like, the earth can slide down and pull the chopper and the tractor with it. You must also adjust the speed at sharp turns uplands.

During unloading the centre of gravity of the load will move backwards and thereby the support load of the chopper on the tractor will be reduced. Under unfavourable circumstances the support load can be almost zero. Then the manoeuvre of the tractor might change. Therefore, drive carefully when the chopper looks as if it could not be in balance.

Some trailers have been equipped with brakes, either hydraulic brakes or automatic brakes. Be sure that the brakes always work correctly. A heavy load is very difficult to stop with the tractor it self. Regularly check and every time the machine is used if it brakes satisfactory. It might be necessary to adjust the brakes regularly; it is your responsibility that the brakes always function properly.

If the blade cylinder or the feed rollers are blocked, declutch and stop the tractor engine immediately, activate the parking brake and wait until the revolving parts have stopped before trying to remove the grass or the object that blocks.

Unfortunately, this cannot be said too often: Never remove grass or objects while the machine is running and never put grass into the pick-up by your hands or feet. There is a considerable risk of being caught and taken into the chopper, which would cause dismemberment or death.

Therefore, you must never allow anybody to stay near the chopper while it is working, especially not children, who do not know the danger and might behave in an unexpected way.

PARKING

The machine must be parked on plane and even ground. Remember likewise to block the wheels of the machine if there is a risk that it might roll after the parking.

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

LUBRICATION

When lubricating or maintaining the machine. Only work on the machine one person at a time.

Never try to clean, lubricate or adjust the machine before the PTO drive shaft has been declutched, the tractor engine stopped, and the parking brake activated.

GRINDING

Before you start grinding, follow this procedure:

- Stop the tractor engine
- Activate the parking brake
- Wait until all revolving parts have come to a complete stop.

Unfortunately, it is necessary to remove some of the guards in order to change the direction of rotation of the rotor when grinding the blades. The chain or the belt transmission might injure the hands if the revolving parts have not stopped before the guards are removed.

The grinding operation should be performed as follows:

1. Check that the grindstone is intact and that the device is able to slide back and forth.

2. Lower the guard behind the grinding device to allow free access to the blade cylinder.

3. Adjust the stone and shield the grinding device by the guard again.

4. Remove the guard above the blade cylinder transmission and change the direction of rotation of the rotor.

5. Fix the guard again and check that nobody is near the machine.

6. Start the tractor again and keep the RPM close to idling.

7. Carefully carry out the grinding.

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

When the grinding is finished, stop the tractor again, adjust the direction of rotation to cutting and fix all guards.

Only grind when all the guards are closed!

MAINTENANCE

Retighten all bolts after about 2 days of work, especially the blade bolts of the knife cylinder.

Always make sure that the spare parts are tightened to the correct torque and that the parts on the machine are tightened regularly (see section 5: Maintenance).

Never use any other spare parts than the ones prescribed by the factory.

MACHINE SAFETY

If the vibrations or the noise of the machine increase considerably during a period, stop working immediately and check if there could be damage on the rotating parts. Do not continue the work before the fault has been corrected.

Daily, during the season check there are no missing blades or bolts on the machine. If this is the case mount the parts immediately.

At regular intervals clean the machine by removing grass and earth and at the same time check that all parts are intact.

Check regularly that all parts at mortise joints (the various pins) are intact and sufficiently lubricated.

REPLACEMENT OF WEARING PARTS

Blades, blade bolts and the shearbar are made of high-alloy, heat-treated materials. This heat treatment results in a particularly hard and ductile material able to withstand extreme stress. If these parts are damaged they must be replaced by original JF parts to ensure perfect work.

In the season, blades and blade bolts must be checked each day.

The special blade bolts must be tightened by a torque wrench to 400Nm.

When the blades have been worn 8 mm down, max, or 12 mm above the straight piece, they must be replaced (see fig. 1-4).

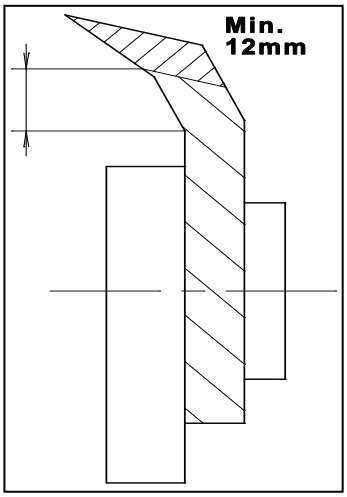

Fig. 1-4

After replacement of blades, blade bolts or the like, check that no tools are left in the machine.

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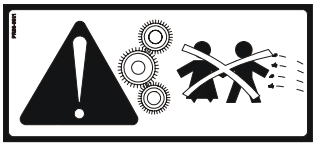

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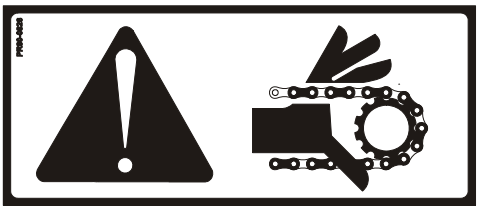

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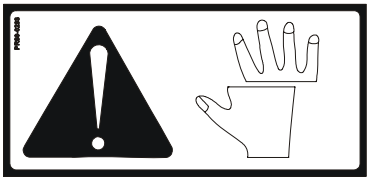

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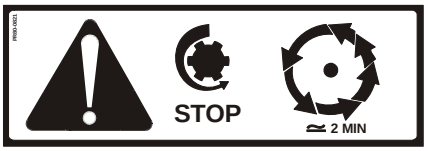

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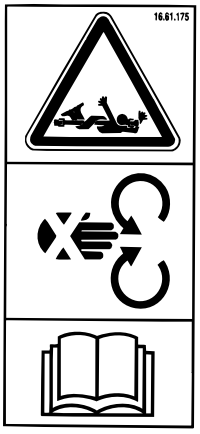

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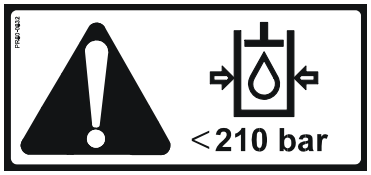

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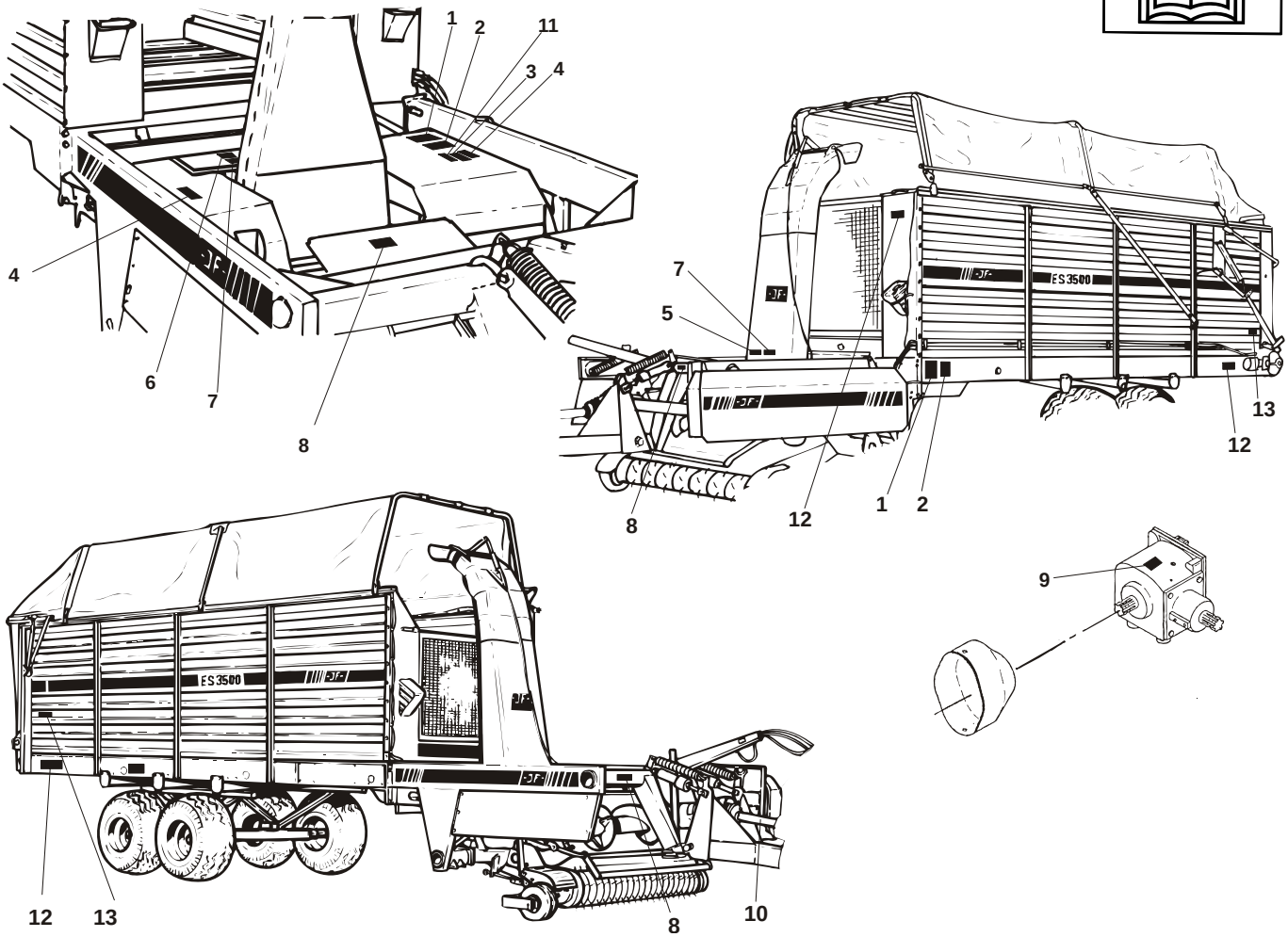


SAFETY DECALS

The warning decals shown on the previous page are positioned as shown on the drawing at the bottom of the page. Before using the machine check that all the decals are present, if not, order 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 remove the ignition key to ensure that nobody starts the tractor before the work

2. **Read the instruction manual and the safety instructions**
   This is to remind you to read the documents supplied with the machine to ensure that it is operated correctly and to avoid unnecessary accidents and machine damage is completed.

3. **Children**
   Never let children stay near the machine during the operation. Especially not small children as they might do unexpected things.

4. **Chain drive**
   Under this guard is placed one or more chain drives. 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 in 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 the grinding is started.

7. **Revolving blades**
   When the PTO drive shaft of the tractor has stopped, the revolving blades of the machine will keep revolving 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 stay near the pick-up or the feed rollers while the machine is running. Make sure that the tractor engine has stopped first.

9. **Number and 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 will damage the machine and increase the risk of personal injury.

10. **PTO drive shaft**
    This decal is a reminder of how dangerous the PTO drive shaft can be if it is not correctly mounted or protected.

11. **Max. 210 bar.**
    Make sure that all hydraulics is not exposed to more pressure than 210 bar, as there could be a risk of explosive damage of parts. Hereby you expose yourself and other persons to the danger of getting hit by metal parts with high speed or oil under high pressure.

12. **Conveyor chain.**
    Never activate the conveyor chain if anyone is standing on the trailer. Make sure that no one will get on the trailer while the conveyor chain is running, nor when cleaning. It can be very dangerous.

13. **Risk of being jammed at connection.**
    Never let anyone stay between the machine and the tractor at connection to the tractor. Unintentional manoeuvres and misuse may cause serious personal injury.

TECHNICAL DATA

TYPE		**ES 3500**	**ES 2500**
Cubic capacity (DIN)		34 m^3	25 m^3
Carrying capacity, max.		10000 kg	800 kg
Support load, approx.		2000 kg	1900 kg
Own weight		4800 kg	4400 kg
Time for unloading, approx.		½ minutes at 70 l/minute	
Pick-up width		1.8 m	
Number of feed rollers		4 pcs.	
Number of blades		24 pcs.	
Cutting length		7,5-15-30 mm	
Power requirements, min.		70 kW/95 HP	
RPM on PTO		1000 RPM	
Oil take out		1 double, 3 single*	
Length		10.0 m	8.5 m
Width		2.5 m	
Height, working position		3.9 m	
Height, net dropped down		3.4 m	
Ground clearance under pick-up		0.6 m	
Tyre dimensions	Standard	550/45 – 22,5 12 PR	
	Alternative	500/55 – 15,5 (10 PLY)	
Track width		1.9 m	
Tungsten coated shearbar and blades		Standard	
Electric reverse for feed rollers		Standard	
Reverse grinding		Standard	
Lighting kit		Standard	
Hydraulic tilting of drawbar		Standard	

* A three-way valve requiring only 1 single-acting oil take out can be delivered with the machine.

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

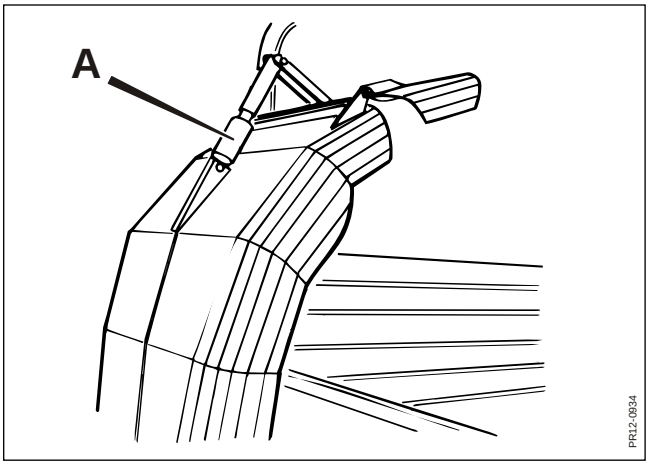
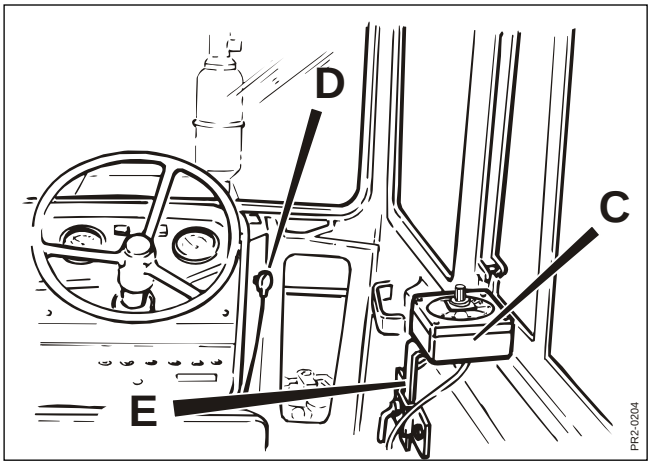


Fig. 2-1



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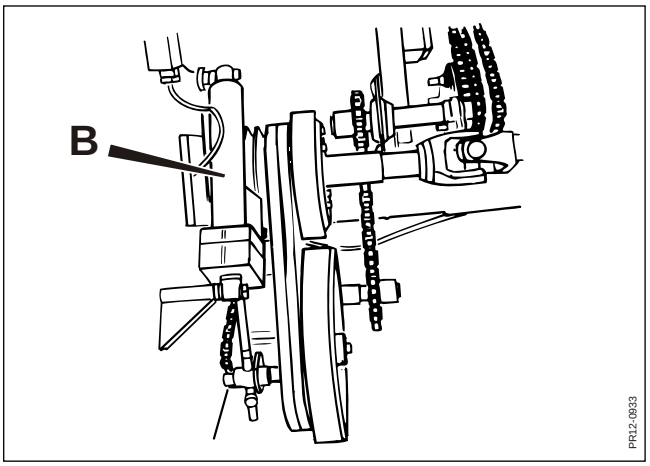

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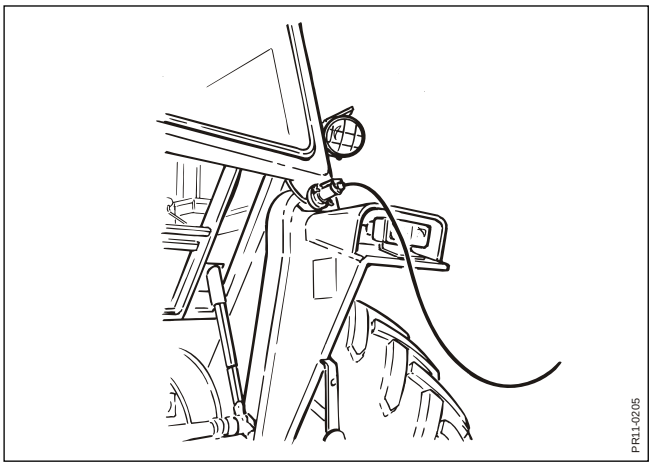

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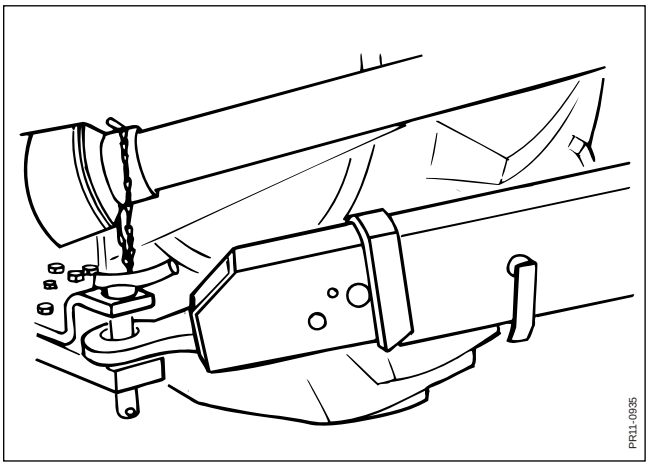


Fig. 2-5

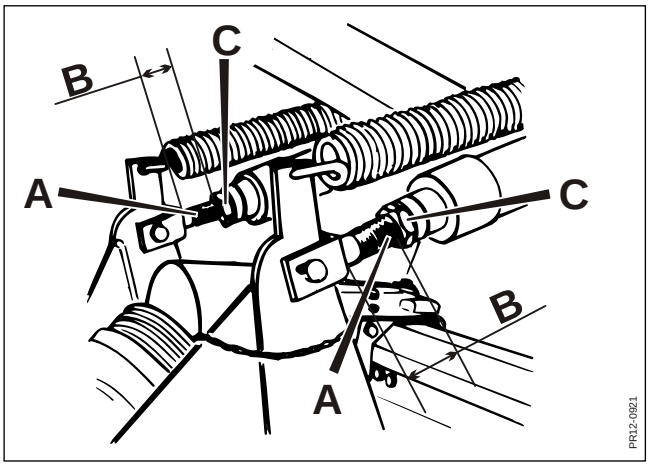


Fig. 2-6

2. CONNECTION AND TEST DRIVING

CONNECTION TO THE TRACTOR

ELECTRIC CONTROL OF DEFLECTOR AND REVERSE

Fig. 2-1 The equipment consists of an electric mechanical controlled unit **A** for adjustment of
Fig. 2-2 the deflector, an electric mechanical controlled unit **B** for reversing, and a control
Fig. 2-3 panel **C**.

Fig. 2-2 In the cabin the holder **E** for the control panel is mounted at a suitable place within the reach of the tractor driver, and the control panel **C** is fixed in the holder. The 2-pole plug **D** is mounted on the instrument panel and connected directly to the battery of the tractor.
We do not recommend another connection as for instance to the lights, as the wire thickness for these systems normally is not able to transfer the necessary amount of current.

Fig. 2-3 Electric motor reverse **B**.

Fig. 2-4 Mount the 7-pole plug at the rear of the tractor.

ADJUSTMENT OF THE DRAWBAR

Fig. 2-5 The wagon is parked in horizontal position and the length of the drawbar is adjusted to the tractor.

Fig. 2-6 The height of the drawbar is adjusted by the threaded spindles **A**. The length **B** must be the same on the two cylinders. The counter nut **C** is tightened.

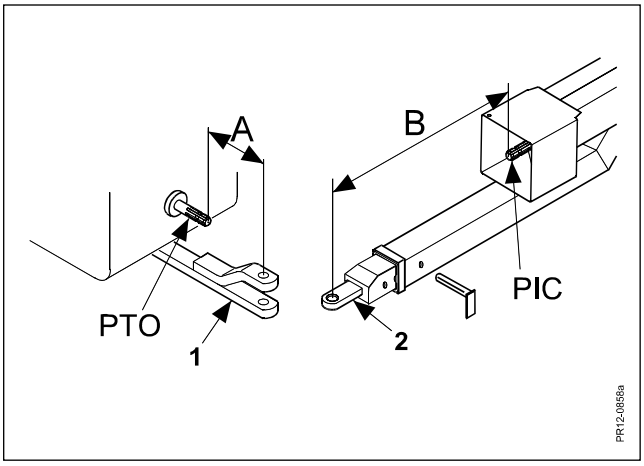


Fig. 2-7

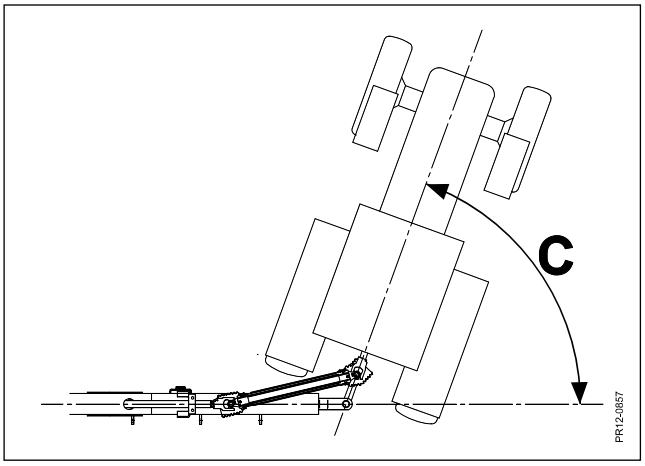


Fig. 2-8

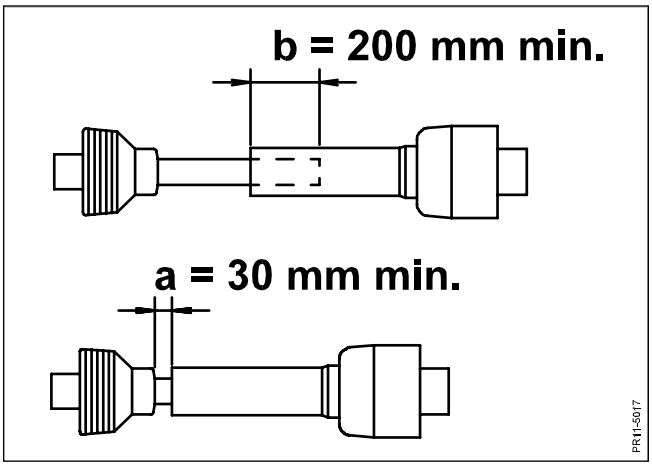


Fig. 2-9

ADJUSTMENT OF THE PTO DRIVE SHAFT

The PTO drive shaft between the tractor and the machine must be mounted with the wide-angle joint on the tractor and the friction clutch on the machine in order to complete the line of transmission.

ADJUSTMENT OF DRAWBAR TO THE WIDE-ANGLE PTO DRIVE SHAFT

Fig. 2-7 Adjust the drawbar of the tractor **1**, so that the distance **A** will be as small as possible. Adjust the drawbar of the machine **2**, so that the distance **B** will be as large as possible.

Fig. 2-8 Check the maximum turning angle **C**.
Because of the position of the PTO drive shaft the turning angle **C** is limited by the fact that the PTO drive shaft must not be pushed more together than the prescribed 30 mm (see fig. 2-9).

WARNING: **Never turn more than the maximum turning angle C.**
On some tractor types the PTO drive shaft can "bottom the shaft", and hereby destroy the shaft and/or other machine parts.

IMPORTANT: Do not shorten your new PTO drive shaft before you are sure it is necessary. The PTO drive shaft is from factory adjusted to fit the distance from the PTO to the PIC, which is standard on most tractors.

SHORTENING THE PTO DRIVE SHAFT

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

Fig. 2-9 Adjust the PTO drive shaft so that it:

- **has the biggest possible overlapping**
- has more than 200 mm overlapping in any position. (As the distance from the PTO to the PIC varies, when the machine is moving up and down within the ordinary working area, it must be secured that the overlapping is sufficient in both outer positions).
- is not compressed more than the prescribed 30 mm in order not to bottom the shaft.

IMPORTANT: The stated values for the overlapping of the PTO drive shaft's tubes **must** be observed as shown in fig. 2-9.

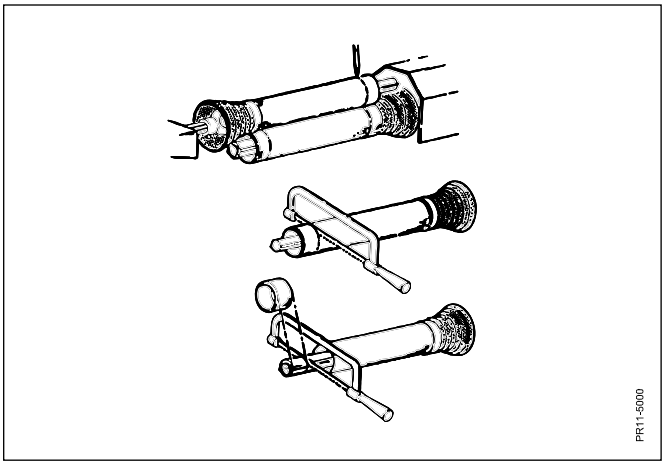


Fig. 2-10

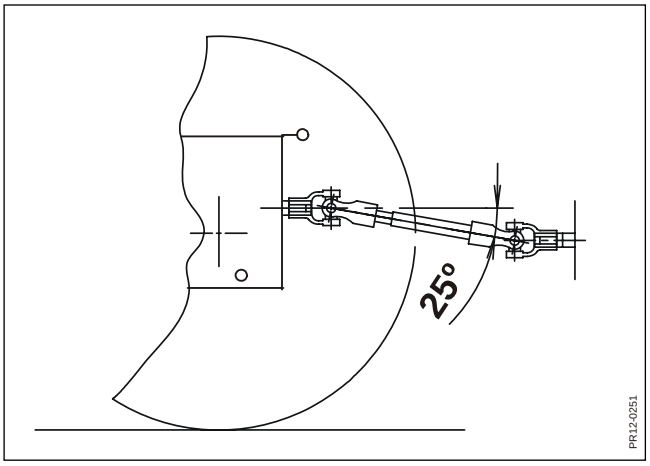


Fig. 2-11

Fig. 2-10 Procedure for shortening of the PTO drive shaft:

1. Separate the PTO drive shaft into two halves, and mount them on the PTO and the PIC, respectively, when these are horizontal opposite each other. This corresponds to the shortest possible length of the shaft on this machine.
2. Keep the shaft ends parallel to each other and mark the 30 mm (minimum) on the tubes. See also fig. 2-10.
3. Shorten all tubes equally. Both the profile tubes and the protective tubes.
4. The profile tube ends must be rounded off and any burrs must be removed carefully. It is very important that the outer tube is deburred inside and the inner tube is deburred outside. The deburring secures the surface of the profile tubes against damage of sharp edges and impurities.
5. The ends of the profile tubes are wiped clean of dirt and loose burrs.

WARNING: Grease the profile tubes thoroughly before the PTO drive shaft is re-assembled, as lack of lubrication results in large frictional forces during work, which then will result in overload of the transmission.

When the PTO drive shaft has been re-assembled it should be checked that the power transmission has sufficient overlapping in all positions by turning to the maximum turning angle.

Finally, check that the speed of rotation of the tractor is 1000 RPM, which the machine was constructed for and that the direction of rotation is correct.

WARNING: A too high number of PTO revolutions can be dangerous. A too low number of revolutions, however, might result in unnecessary high torque loads on the transmission.

PREPARATION

It is important that the universal joint of the power transmission and especially the profile tubes are greased every 8 working hours, which is recommended by the manufacturer.
It is a good idea to grease the PTO drive shaft every day the machine is operating.

MAXIMUM ANGLES

Fig. 2-11 For a standard PTO drive shaft we recommend the following maximum angles for the individual universal joints:

Constant operation	25°
Short operation	45°
Standstill	90°

TEST DRIVING

CHECK BEFORE TEST DRIVING

The following must be checked before test driving the machine:

1) The hydraulic components must be connected correctly and fixed together.

2) The PTO drive shaft of the tractor must have the correct number of revolutions (1000 RPM).

3) All lubrication spots must have been greased. See also section 4; LUBRICATION.

4) All blades on the rotor must be intact and tightened correctly.

5) The connection of the PTO drive shaft of the tractor will be with a low number of revolutions on the engine.

6) The safety guard of the PTO drive shaft must not rotate, the safety chains must be fastened correctly.

7) The guards of the machine must be complete, intact and mounted correctly.

8) All tools must be removed from the machine.

9) No persons must be near the machine when it is working.

THE TEST DRIVE

Carefully engage the PTO drive shaft and let the machine run at low number of revolutions for some minutes.
If there is no unintentional noise or unusual vibrations the speed can gradually be increased to the normal number of revolutions (PTO = 1000 RPM).
Except from the tractor driver no other person should stay near the machine.

Regularly check, and especially during the test driving, if any vibrations occur in the machine that are larger than usually.

During the season you must check daily if blades are damaged, and if necessary replace the damaged blades with new ones.

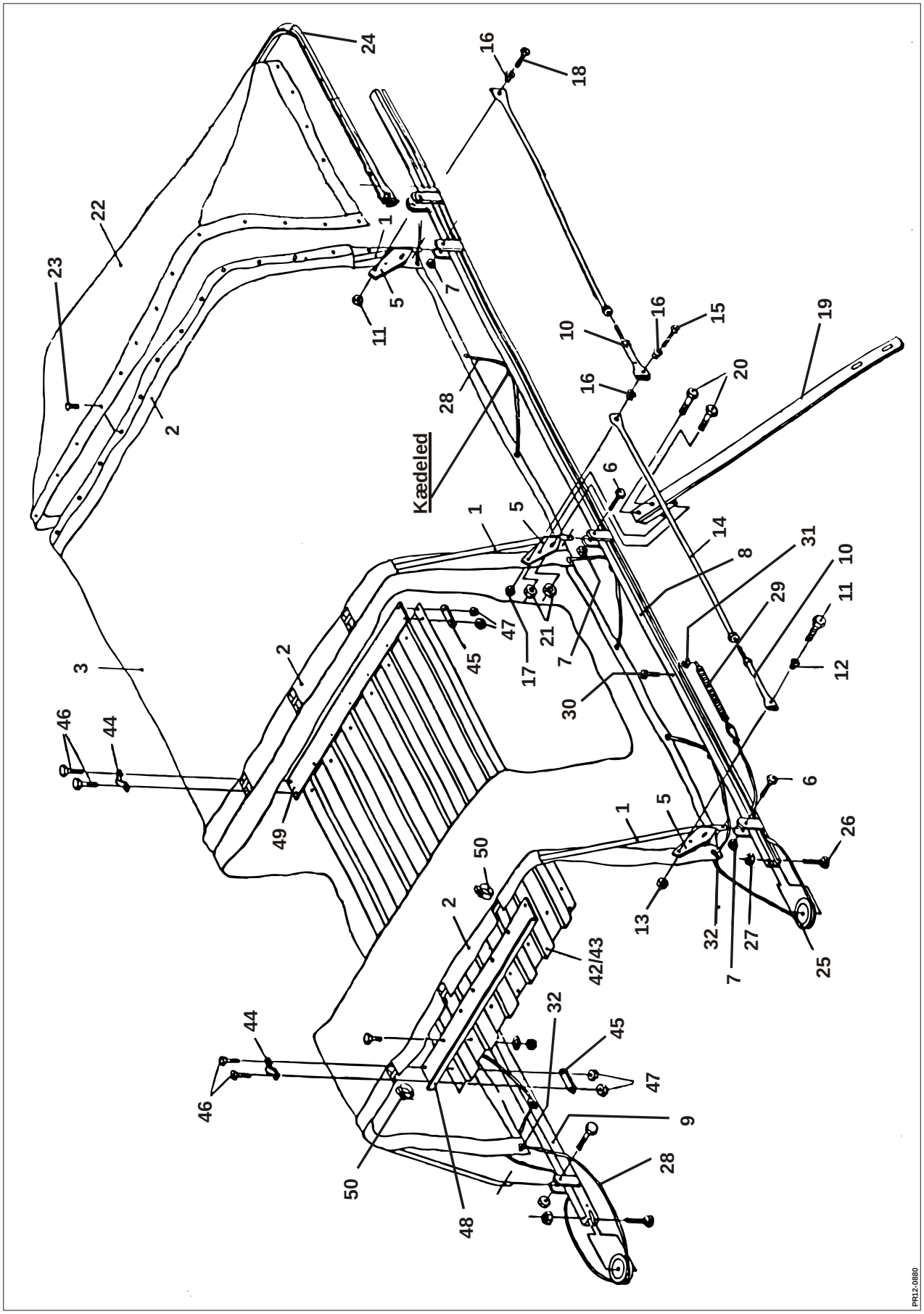


Fig. 2-12

MOUNTING OF NET ROOF

Fig. 2-12 First the hoops **1** are run through the passages **2** on the net roof **3**, so that the passages **2** are on the outer side and the eyes **4** point to the rear. The hoops **1** are mounted, so that the fishplates **5** welded on points to the left in the direction of travel. The hoops **1** are bolted so they can pivot on the frames **8** and **9** with screws **6** and the self-locking nuts **7**.

The short tube **10** is bolted so it can pivot on the upper hole of the front fishplate **5** by means of screw **11**, button for canvas **12** and self-locking nut **13**. Then the two tubes are screwed together.

Now screw **15** is mounted with bush **16**, short tube **10**, bush for canvas **16**, tube **14** and self-locking nut **17** in the upper hole of the centre fishplate **5** welded on **1**.

The short tube **10** is screwed together with tube **14** and mounted in the upper hole of the rear fishplate **5** by means of screw **18**, bush for canvas **16** and self-locking nut **17**.

The handle **19** is mounted in the front fishplate **5** mounted with screws **20** and self-locking nuts **21**.

The net roof is aligned and the handle **19** is placed in the front support and secured with flat cotter pin. Pulley for net **25** is mounted with screws **26** and self-locking nuts **27** in the frames **8** and **9**.

The rear net **22** is mounted on net **3** and hoop **24** with screws **23**, washers and nuts. String is led behind the hoop **24**, then led forward according to drawing and fastened on spring **29**. Spring **29** is mounted on screw **30** and tightened with nut **31**.

Net **1** is pulled completely forward. Net **1** and string **28** are fastened with binding screw **32**.

The baffle plates long **42** and short **43** are mounted on the platform under the net at the 1. and 2. hoop **1** by means of supports **44**, fishplates **45**, screws **46** and self-locking nuts **47**. As reinforcement plate **48** is placed in front and the plate **49** at the back.

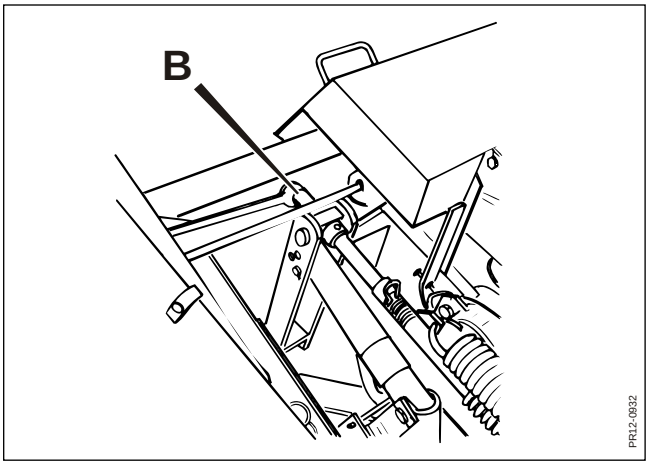


Fig. 3-1

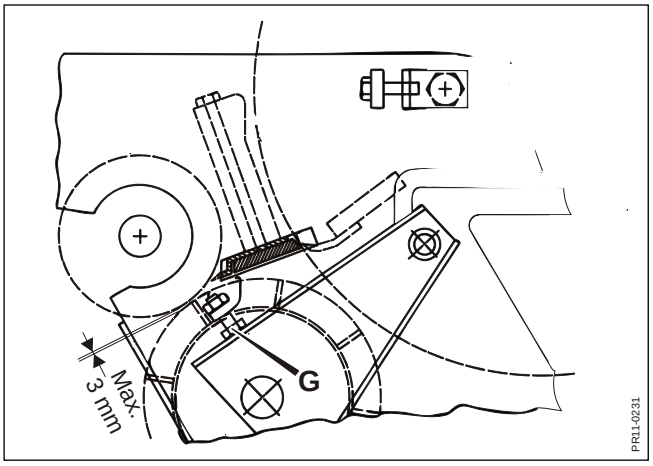


Fig. 3-2

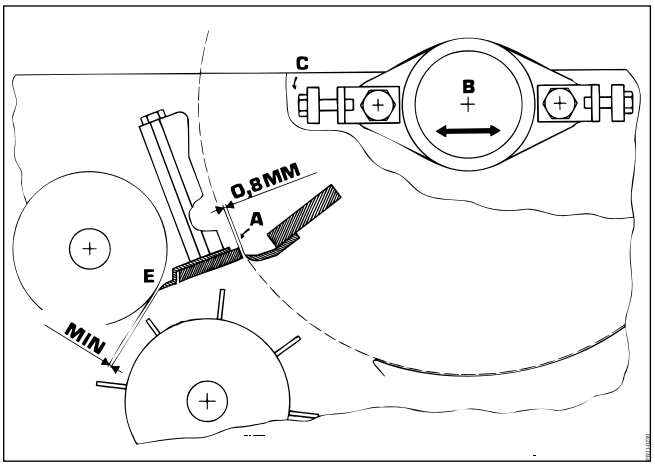


Fig. 3-3

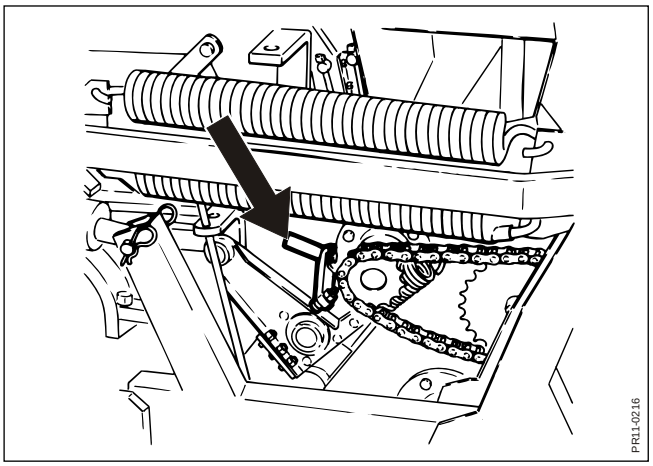


Fig. 3-4

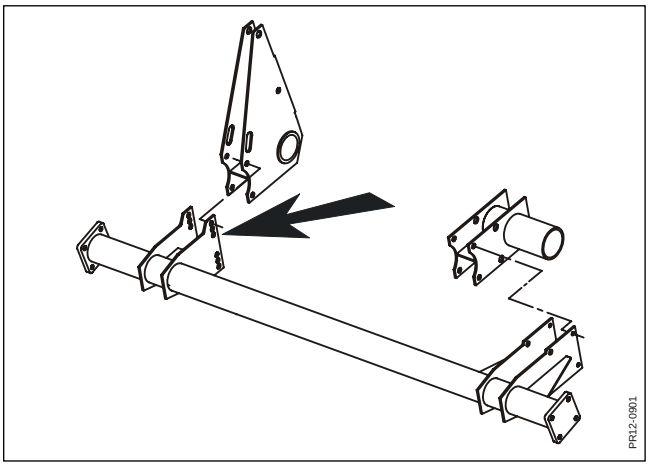


Fig. 3-5

3. ADJUSTMENTS AND DRIVING

ADJUSTMENTS

RELIEF SPRINGS

Fig. 3-1 With the spindle **B** the relief springs are tightened, so that the pick-up will have a max. pressure towards the ground of approx. 20 kg.

ROLLER DISTANCES

Fig. 3-2 The distance between the upper smooth roller and the lower roller should be max. 3 mm. The adjustment is adjusted at the bolt **G** in both sides.

BLADES AND SHEARBAR

Fig. 3-3 The distance between the blades of the rotor and the shearbar **A** is checked at regular intervals with the supplied gauge (distance measuring equipment). The distance is adjusted by loosening the bearing housing of the rotor **B**, and adjusted with the screws **C**. The bolts of the bearing housing are re-tightened after the adjustment to a torque of 320 Nm.

SCRAPER

The machine is provided with a scraper for the upper roller and a turnable shearbar, which can be worn on 2 edges.

Fig. 3-4 The scraper is dismounted by loosening the screws, which hold the shearbar, so that the scraper and the shearbar can be taken out through the opening in the side of the rotor housing (see fig. 3-4)
If necessary the shearbar may be turned for wear of a new edge.
When mounted the scraper it is positioned as close to the smooth roller **E** as possible not to damage roller (see fig. 3-3) and the bolts **D** are tightened to 100-120 Nm.

THE PICK-UP UNIT

Fig. 3-5 It is possible to adjust the height of the pick-up unit on one side in order to adjust it to horizontal position. Thereby the wear and tear on the curve rollers is reduced on the side closest to the ground.

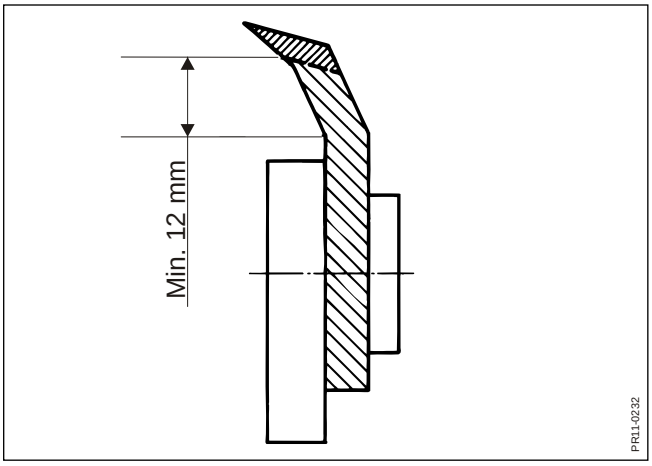


Fig. 3-6

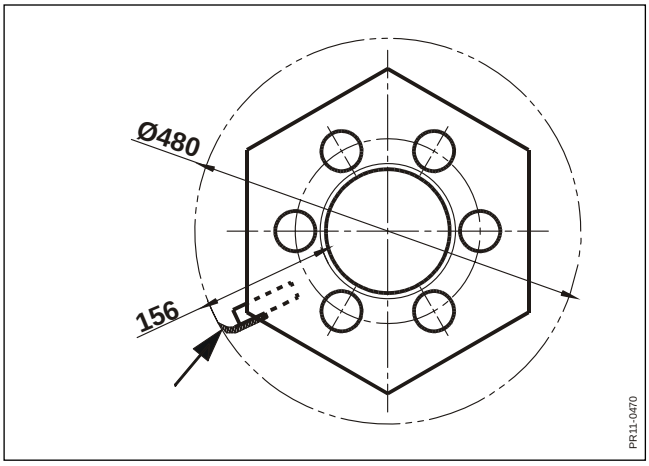


Fig. 3-7

REPLACEMENT OF BLADES

When replacing a single blade the blade must be placed at the same distance to the shearbar as the existing blades. In order to ensure that the rotor is in balance it might be necessary to replace the opposite blade, as a used blade does not weight the same as a new one.

Even though that there are no visible damage to the blade bolts they must always be replaced when another blade is mounted, as they might have been overloaded.

Measure with the supplied gauge before the bolts are tightened completely.

Please notice: Only original, special blade bolts must be used when replacing old ones. The blade bolts are tightened with a torque wrench to 400 Nm, or with the supplied wrench the bolts are tightened pulling the wrench one time to approx. 40 kg.

Fig. 3-6 When the blades are worn max. 8 mm or worn to the front bending – approx. 12 mm above the straight piece these are also replaced.

When all rotor blades have been worn and the rotor has been adjusted towards the shearbar, it must be adjusted backwards again before the new blades are mounted.

Fig. 3-7 When mounting the new blades these are pulled out so that the outer diameter of the rotor is 480 mm (from the rotor tube to the point of the blade = 156 mm).

DRIVING WITH THE MACHINE

LOADING

The net roof is raised, the nets are tightened and secured with the handle, which is positioned to the left in the direction of travel. The precision chop forage harvester is now ready to work.

The PTO drive shaft (1000 RPM) is engaged and because of its large torsional moment the precision chop forage harvester is slowly started. Besides, a careful engagement will spare both tractor and precision chopper. Then bring the precision chopper to the full number of revolutions before driving into the crop. The swath should be even and not too large, you must drive on top of the swath at low forward speed to start with, then increase the forward speed to a suitable speed depending upon the crop.
Avoid sharp turns when turning – max. 70º.
With the electrically adjustable deflector the trailer can be loaded fully from the rear and forward. If the trailer is only filled in one side, the adjustment of the crop deflectors in the delivery chute can be adjusted.

The average capacity is dependent on the capacity of the tractor, the condition of the crop and the cutting length.

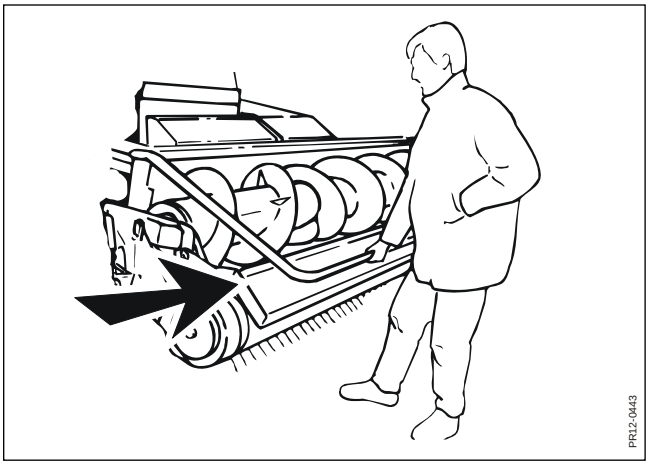


Fig. 3-8

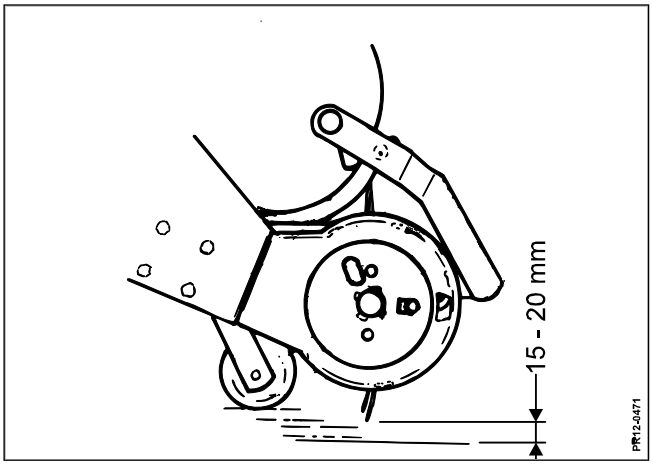


Fig. 3-9

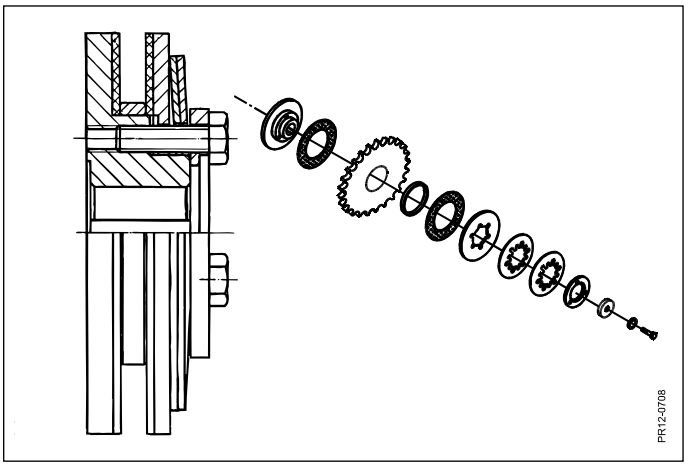


Fig. 3-10

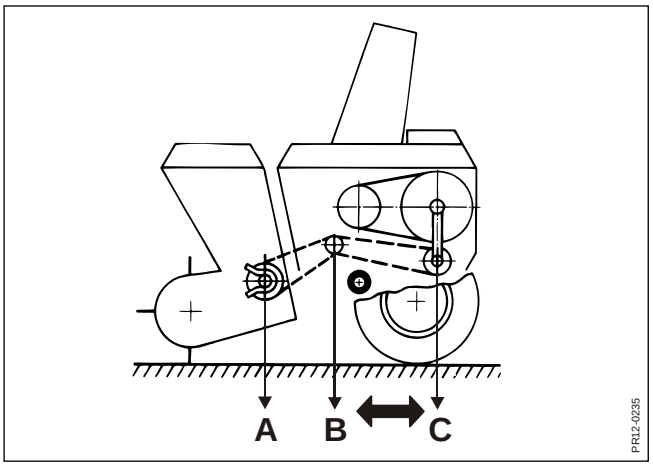


Fig. 3-11

UPPER PLATE FOR PICK-UP

Fig. 3-8 With the stop plate for pick-up intended for picking up short-cut crop, the picking up of swath (short grass) will be made without any problems.
The material is pressed from the upper plate against the pick-up springs. This ensures that the material does not fall forward.
Depending on how large the swath is, this upper plate can be positioned in the required distance to the pick-up by adjusting the stop bracket.

WORKING IN THE FIELD

When driving with the pick-up it is an advantage that the swath gets into the machine just in front of the feed channel.

Careful swathing will save much trouble for the following chopper.

Activate the reverse mechanism if there is a stop. Avoid unnecessary use of this reverse mechanism.
Remove the reason for the stop.

Never leave the tractor cabin with the PTO drive shaft engaged.

Fig. 3-9 The pick-up is equipped with supporting rollers, which can be adjusted in height.
Do not go deeper with the pick-up springs than necessary in order to avoid that the springs mix earth into the crop, but still are able to pick up the crop without waste.

Fig. 3-10 The auger and reverse are equipped with disc couplings. If these disc couplings have often been activated the spring force in the discs is weakened and the power transmission is reduced. It might be necessary to replace the disc wheels. Replace with the same number and strength. The torque of the coupling is dependent on the thickness of the discs and the number of discs. The couplings are mounted to a firm torque from the factory.
Do not feel tempted to replace with stronger discs or to increase the number of discs.

CUTTING LENGTH

Fig. 3-11 From the factory the machine is mounted to 15 mm cutting length. If a 7.5 mm cutting length is required the 18 and 25 teeth chain wheel are exchanged as shown.

Cutting length [mm]	A	B	C
7.5	18	25	18
9.0	21*	25	21*
12.0	36	21*	25
15.0	36	18	25

* = Not standard.

All cutting lengths can be doubled when removing every second row of blades on the rotor.

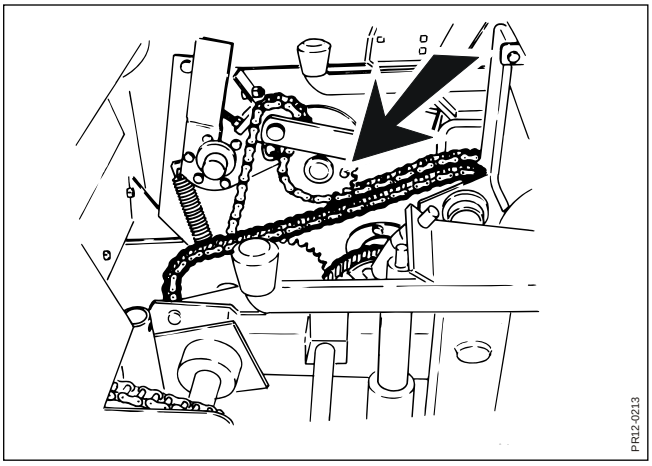


Fig. 3-12

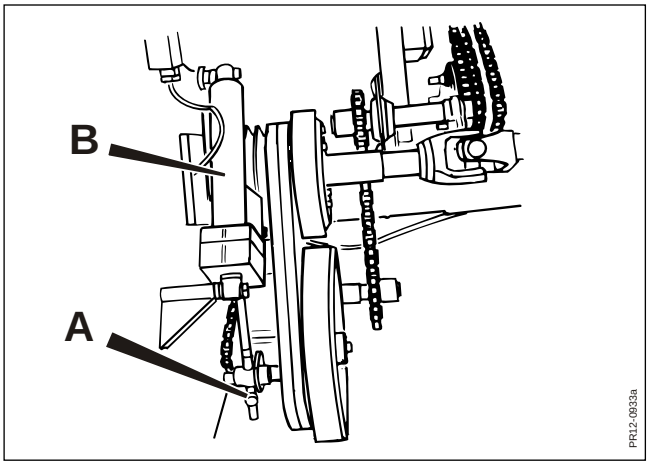


Fig. 3-13

REPLACEMENT OF SHEAR BOLTS

Fig. 3-12 The feed rollers (3 pcs.) are protected from overload by means of a shear bolt (order No.: see the spare parts catalogue).

WARNING: Only mount one shear bolt per coupling.

Only original JF shear bolts must be used, as these shear bolts have the quality adjusted to the permissible torsional moment for the feed roller.

In the case that the shear bolt is sheared, a smaller deformation might occur around the hole in the sprocket wheel and hub, so that the holes will become oval.
Oval holes must not be used to mount a new shear bolt. In stead one of the other holes (in total 4) must be used. When all holes have become oval the sprocket wheel and the hub must be replaced.

In order not to transmit the torque via the friction between the sprocket wheel and the hub, the shear bolt must not be tightened too hard. This is ensured by tightening the nut first and then to loosen it ½ turn.

Always find the reason for the shearing of shear bolt; i.e. examine if there are any foreign matters in the machine.
These disc couplings must be greased in order to avoid seizings and rust.

REVERSE

Fig. 3-13 The machine is equipped with an electrically controlled reversing gear, which reverses the feed roller and auger.
This allows blockages in the feed in-take can be reversed out of the machine.
The reversing gear must only be activated at a very low number of revolutions and only for short periods.
Tightening of the belts is done at tightening bolt **A**. Electric motor **B** must be in bottom position before the belts are tightened.

When chopping crop the machine must always work with full number of revolutions in order to avoid any blocking in the delivery chute.

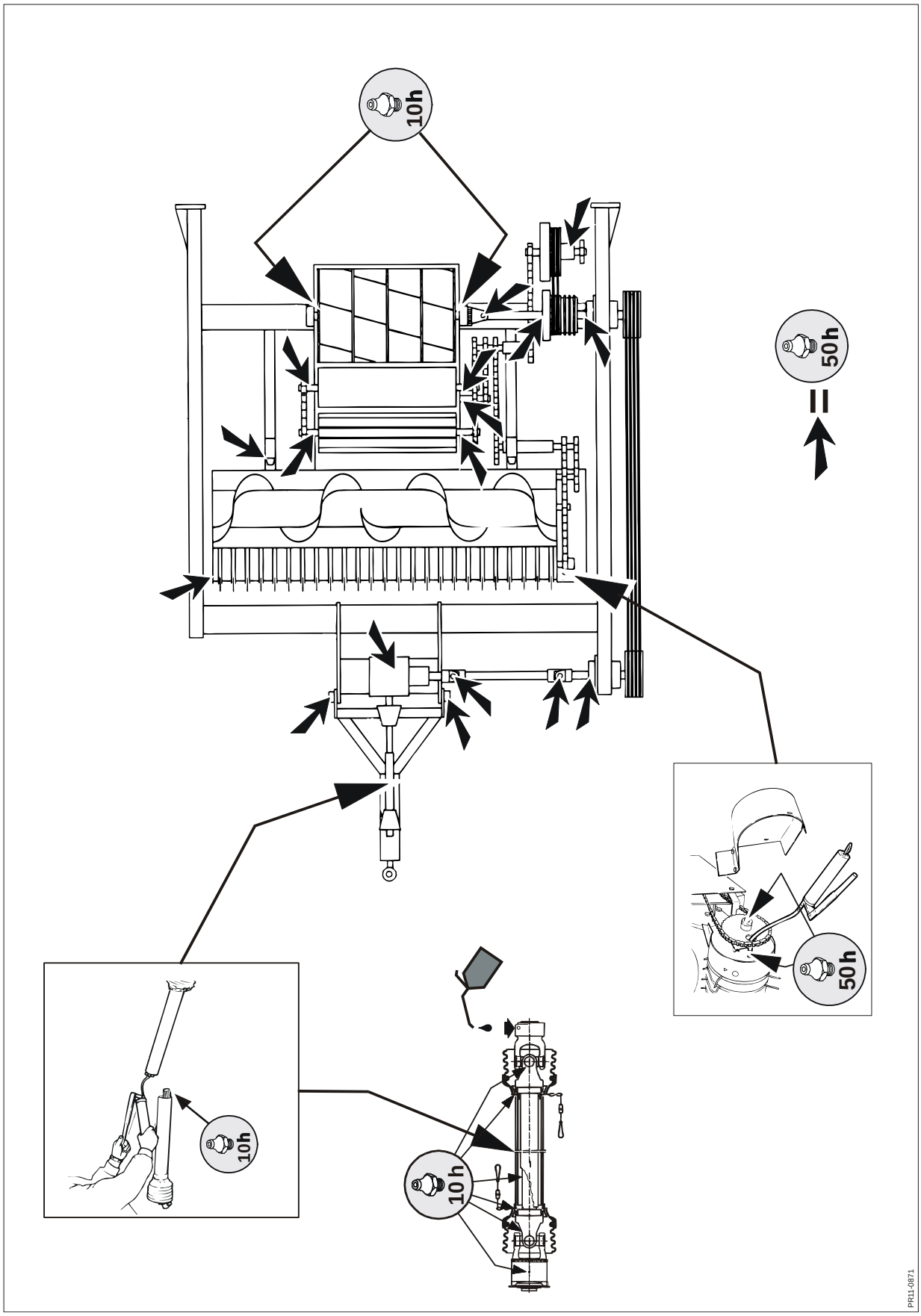
UNLOADING

The rear door is opened completely, and then the conveyor chain is activated.
The unloading speed is adjusted by changing the number of revolutions of the tractor.
During the unloading, please consider that the crop is now able to come out freely.

When driving on clamp silos the trailer is raised by means of the hydraulic tip device on the drawbar.
When the unloading is done the rear door is closed and you must ensure that it is locked.

Lubrication chart for the chopping unit of the precision chop forage harvester <u>ES 3500 and ES 2500.</u>

Below grease spots **must** be greased according to the operation time intervals indicated.



4. LUBRICATION

CHOPPING UNIT

GREASE

Always make sure that the chopping unit is properly and sufficiently greased before it starts operating.

Go through the lubrication chart on the opposite page.

Type of grease: **Universal grease of good quality.**

Rotating mechanical connections are greased with grease or oil as required, including guide for grinding device.
Chains are lubricated with thin oil or chain saw oil.

WARNING – REMEMBER: ***The PTO drive shaft must be greased every 10. operating hour***. Pay special attention to the **sliding profile tubes** of the PTO drive shaft.
They must be able to slide back and forth even when the torque is heavy.

If you neglect to lubricate the profile tubes sufficiently, it will result in high axial forces (seizing) **in the profile tubes, which will damage the profile tubes and in time also connecting shafts and gearboxes.**

OIL IN BEVEL GEAR

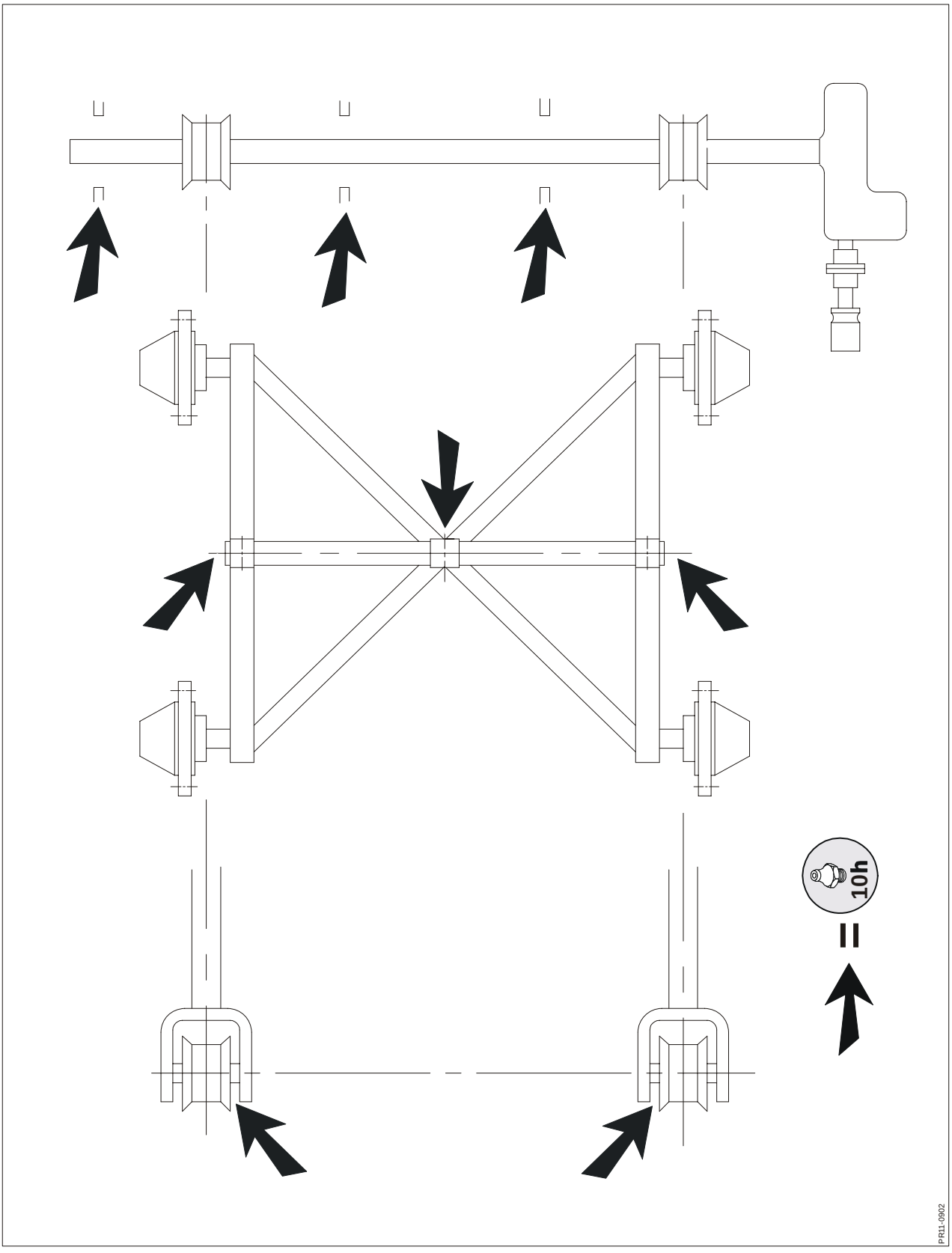
Correct oil content:  1.5 litre, must be checked every 50 operating hours.

Correct oil type: API GL4 or GL5 SAE 80W – 90

Oil change:  The first oil change must be made after every 10 operating hours, and then every 500 operating hours, however, at least once each season.

Lubrication chart for the chopping unit of the precision chop forage harvester <u>ES 3500 and ES 2500</u>

Below grease spots **must** be greased according to the operation time intervals indicated.



TRAILER SECTION

GREASE

Always make sure that the trailer section is properly and sufficiently greased before it starts operating.

Go through the lubrication chart on the opposite page.

Type of grease: **Universal grease of good quality.**

The roller chain must be grease once a day.
Bearings without greasing possibility have been greased for life.

OIL / GREASE IN THE GEARBOX

Oil/grease change:  The first change of oil/grease must be made after 10 operating hours, and then after every 500 operating hours, however, at least once per season.

5. MAINTENANCE

IN GENERAL

WARNING: **When the machine is repaired or maintained it is especially important to ensure correct personal safety.**
Therefore, always park the tractor (if mounted) and the machine according to the GENERAL SAFETY RULES items 1 - 25 in the beginning of this instruction manual.

TIGHTENING OF BOLTS

IMPORTANT: **Screws and bolts on your new machine must be retightened after some hours of operation. This also applies if repair has been made.**

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

Correct tightening torque M_A (if nothing else stated) for bolts on the machine.

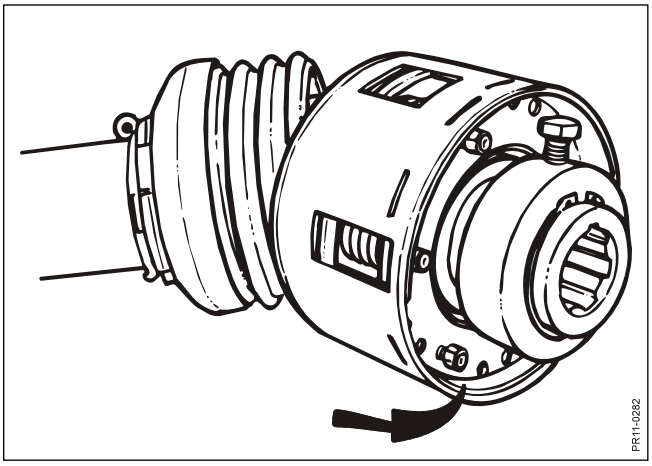


Fig. 5-1

FRICTION CLUTCH

Fig. 5-1 **In order to ensure a long life for your tractor and machine** the machine is delivered with **friction clutch** on the front PTO drive shaft.

In order to ensure that the clutch works as intended it must be “aired” at regular intervals **as dirt and moisture may cause the clutch to get “stuck”.**

Before the start of a new machine and after a long period of standstill, e.g. winter storage, **the clutch is "aired" in the following way:**

The six nuts on the flange are tightened. Hereby the springs are compressed so that they do not press on the clutch plates and the clutch can rotate freely. **Have the clutch rotate for half a minute** to remove dirt and possible rust on the plates. The nuts are **loosened** again until they are at level with the threads of the bolts, and the springs can press on the clutch plates.

WARNING: **If the clutch is overloaded it will slip and get heated, and hence be worn quickly. Overheating will damage the friction plates. If the clutch is blocked or put out of function in other ways the factory guarantee will be discontinued.**

GRINDING

Changing to and from grinding position **must only take place when the machine is stopped.** The rotor must only rotate when the grinding device is in grinding position.

Check before grinding:

- that the grinding stone is undamaged.
- that the apparatus goes easily forward and backward.
- that it is parallel with the rotor.

The grinding device is correctly adjusted from the factory and must therefore usually not be changed, but if the device has been dismounted an adjustment can be made at the oblong holes of the lateral control. The bolts must be re-tightened hard after the adjustment.

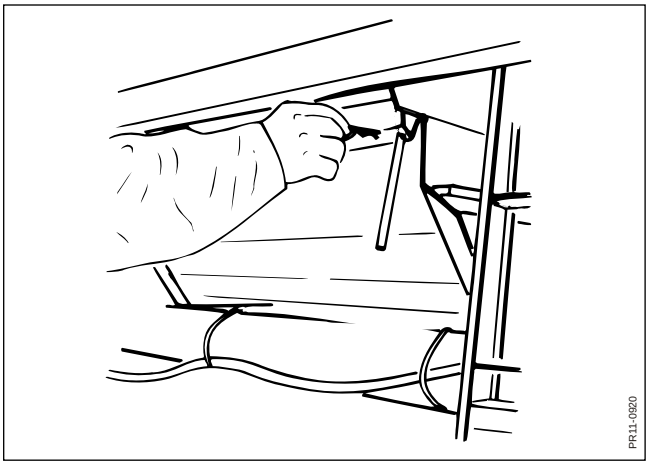


Fig. 5-2

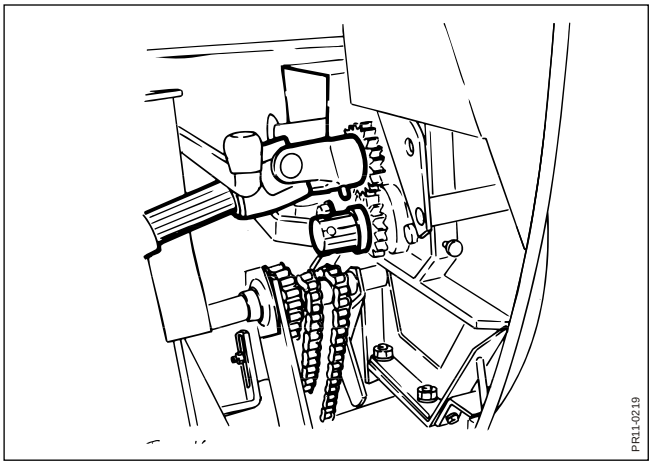


Fig. 5-3

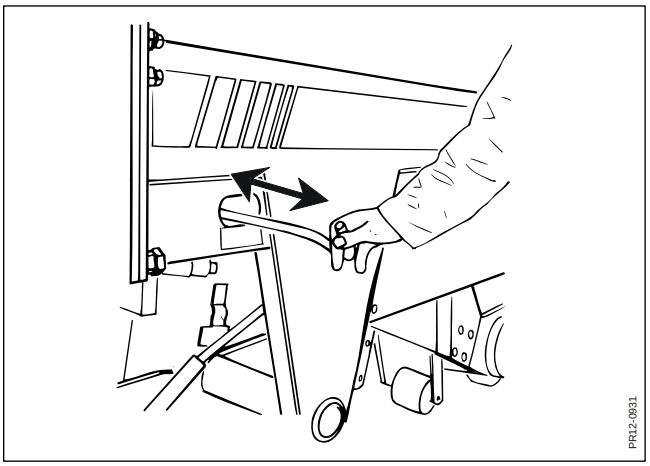


Fig. 5-4

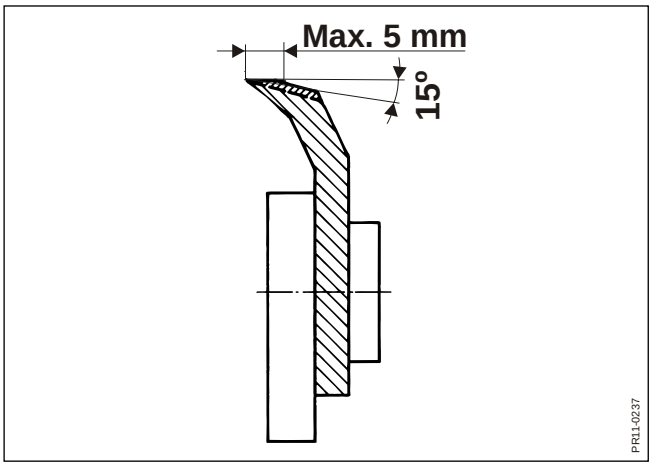


Fig. 5-5

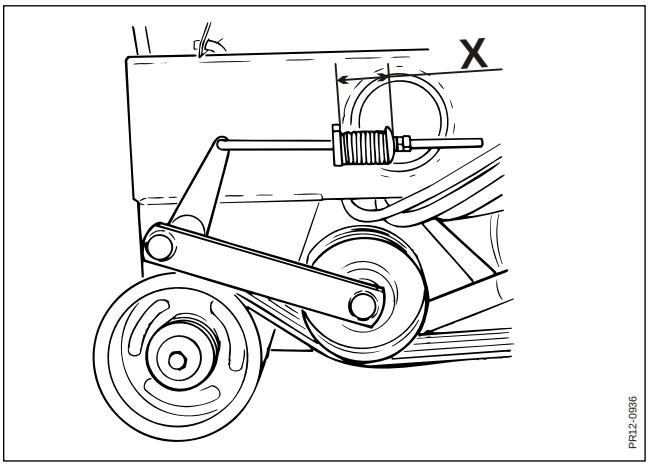


Fig. 5-6

Tightening of grinding stone is made via handle for lateral movement.

Grind once a day – but avoid too much grinding.

CAREFUL: **<u>Protect your eyes</u> - <u>always</u> use eye protectors during the grinding operation.**

THE GRINDING OPERATION

Fig. 5-2
1. Protection behind grinding device is lowered.
2. Stone is adjusted so that it is in a distance of 2 - 3 mm to the blades.

Fig. 5-3
3. The PTO drive shaft for rotor is placed on shaft for reverse rotation of rotor.
4. Close all guards.
5. Start the tractor, have the PTO drive shaft run at idle speed.

Fig. 5-4
6. Take the handle and tighten cautiously until the stone touches the blade. Pull the stone over the whole rotor and back again. Repeat the tightening and the movement over the rotor width until sufficient sharpness has been obtained.

After sharpening the handle is pushed in. The tractor is stopped. The protection is lifted in place. The PTO drive shaft is moved to shaft for rotor.

WARNING: **Check the distance between the blades and the shearbar.**

<u>NB: Grinding only with closed guards.</u>
Check any wear on the grinding stone. If the stone is worn to 10 mm it must be replaced.

Fig. 5-5 In order to avoid unnecessary power consumption during the chopping and extra large wear on the grinding stone, a rough sharpening or an adjustment of the blades must be made (rear edge is grinded down to an angle of approx. 15°), when the grinding edge is 5 mm wide or more.

Rough grinding can be made with a right-angle grinder with rotors (blades) on the machine, but **<u>be careful</u> not to grind off the cutting edge (front edge).**

TIGHTENING OF THE TRANSMISSION BELTS

Fig. 5-6 The V-belts are tightened so much with the tightening screw that the spring has a length of X = 100 mm.
Under no circumstances the spring must be tightened all together.
REMEMBER: New V-belts **<u>must</u>** be re-tightened after a few hours of use.

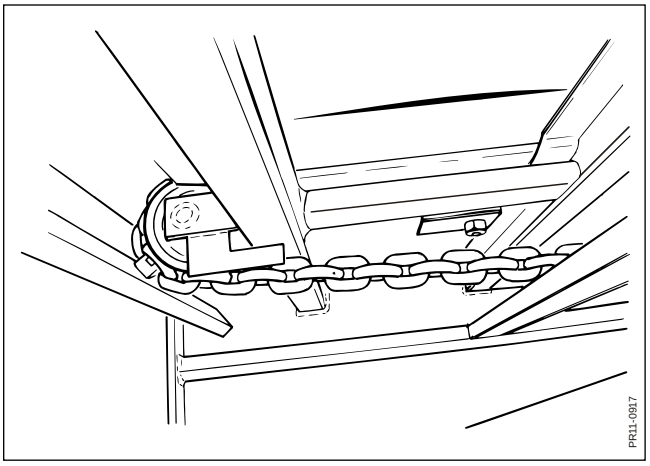


Fig. 5-7

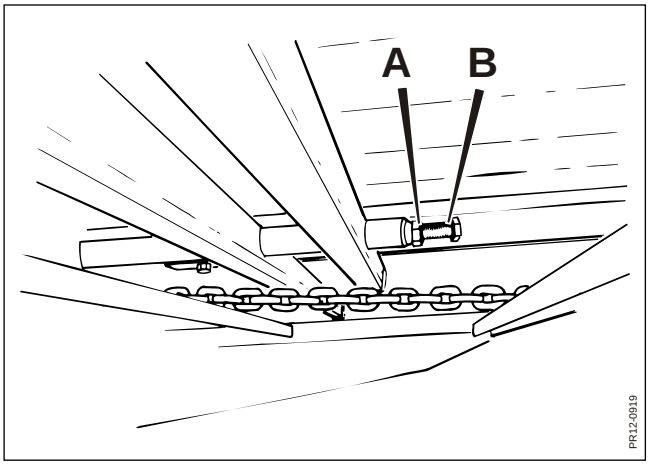


Fig. 5-8

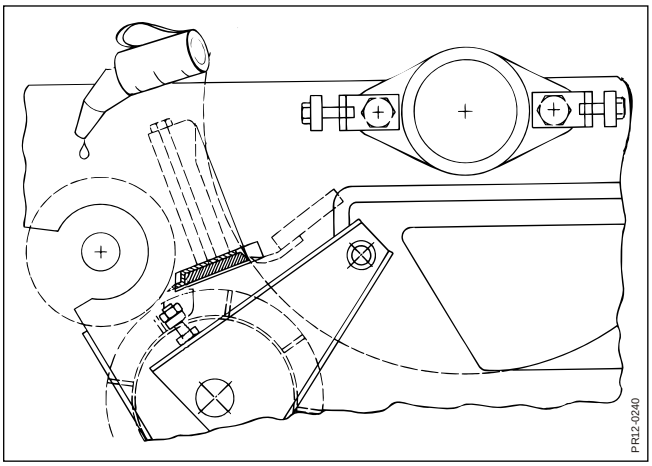


Fig. 5-9

TIGHTENING OF THE CONVEYOR CHAIN

Fig. 5-7 The counter nuts **A** are loosened and the adjustment screws **B** in both sides are tightened equally.

Fig. 5-8 If necessary 2 or 4 chain links can be removed at each chain.

TYRE PRESSURE

Maximum load: 8.000 kg.
Net weight: 4.300 kg.

MOUNTING OF TYRES		Tyre pressure at max. effective load [bar]	Max. tyre pressure [bar]
Standard	550/45 – 22,5 – 12 PR	1,1	2,7
Alternative	500/55 – 15.5 – 10 PR	1,7	2,8

LONG TIME OF STANDSTILL

FEED ROLLER

Fig. 5-9 Especially the upper smooth feed roller must be protected against rust. If the machine is not operating for more than 1 day the upper smooth feed roller must be lubricated in oil.

ELECTRIC MATERIAL

At long time of standstill and during winter we recommend to pull in the spindles on the two electrically controlled units in order to prevent rusting. We also recommend dismounting of the 7-pin plug box and the control box, which is released at the 2-pin plug on the instrument panel.

6. MISCELLANEOUS

STORAGE

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

CAREFUL: Be careful when cleaning with a high pressure cleaner. Never point directly on rotating parts or bearings.

IMPORTANT: Lubricate all greasing spots carefully after the cleaning the machine.

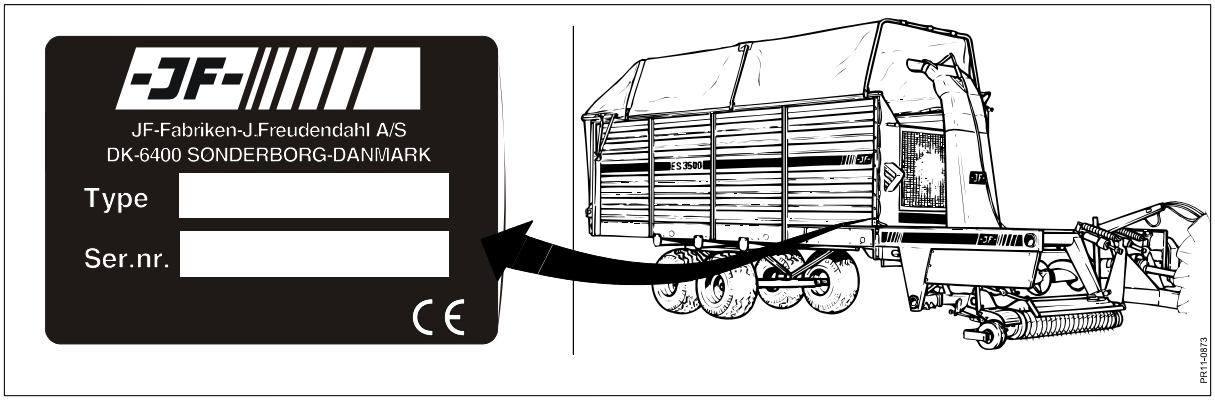
The following points are guiding instructions how to prepare for the winter storage:

- Check if the machine is worn and has any defects.
- Write down the parts needed before the next season and order the spare parts.
- Slacken the V-belts.
- Dismount the PTO drive shaft, lubricate it and the profile tubes and keep them in a dry place.
- Spray the machine with rust-preventing oil. This is especially important as regards all parts polished with use.
- Store the machine in ventilated engine house.

ORDERING SPARE PARTS

When ordering spare parts please state the type and serial number. This information is printed on the machine plate.

As soon as possible after delivery we request you to write this information down on the first page of the spare parts book supplied with the machine so that you have the information at hand when ordering spare parts.



ADDITIONAL EQUIPMENT

Re. spare part Nos.: see the spare parts catalogue.

SHORT CUTTING LENGTH

When using a short cutting length you will notice a considerable reduction in capacity. Therefore, it will be an advantage to replace the driving 20/22 teeth sprocket wheel with a 17/22 teeth sprocket wheel. This means increased revolutions on the pick-up unit.
At speeds above 10 km/h we also recommend you to replace the sprocket wheel.

DISPOSAL OF THE MACHINE

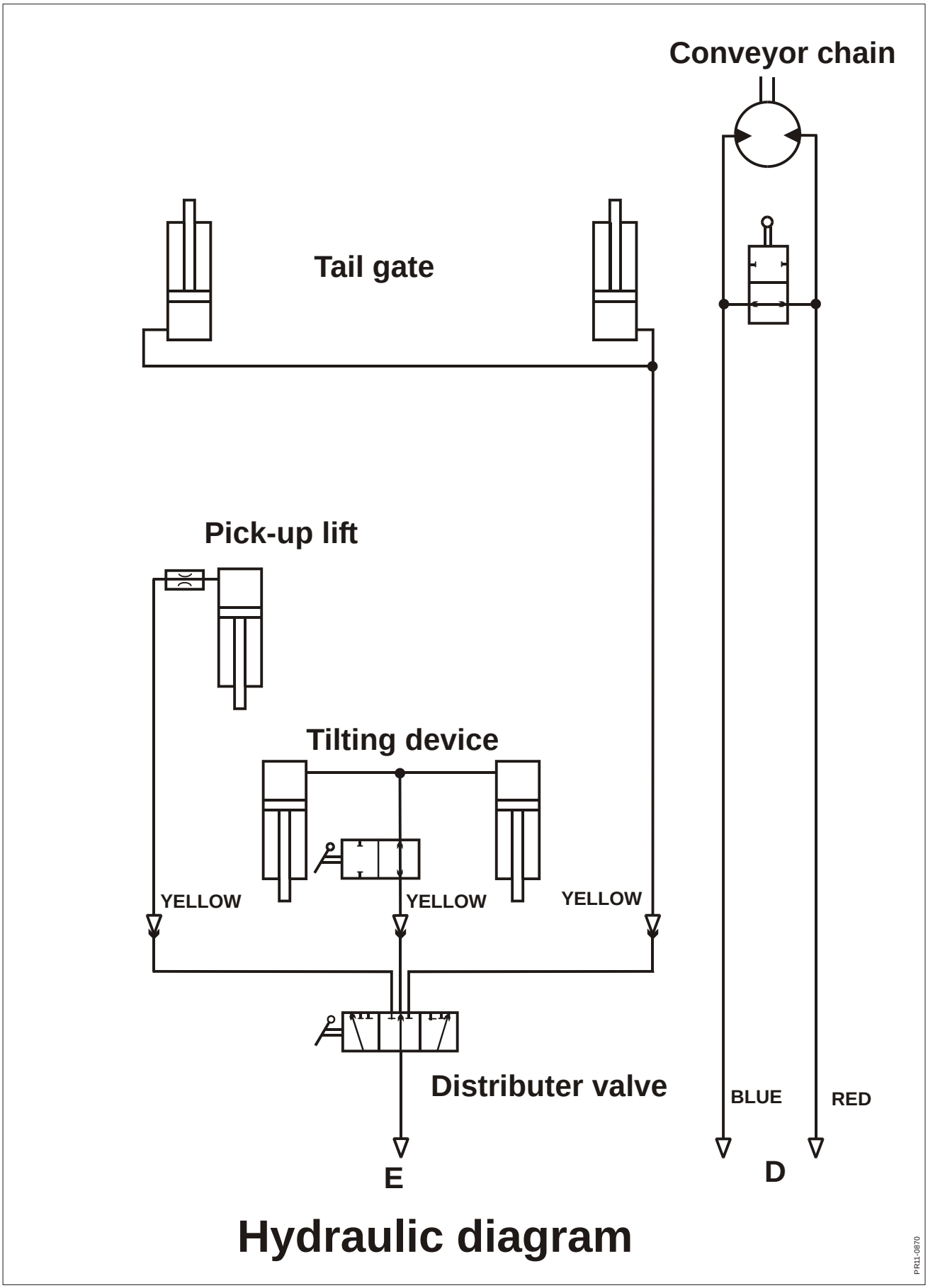
When the machine is worn out it must be disposed in a proper manner.

Observe the following:

- The machine must not be placed somewhere outside; gearboxes must be emptied for oil and grease. These oils/greases must be delivered to a destruction company.

- Disassemble the machine and separate the individual recycling parts, for instance PTO drive shaft, gearboxes, tyres and other components.

- Hand over the usable parts to an authorised recycling centre. Take large scrapping parts to an authorised breaker's yard.


Conveyor chain
Tail gate
Pick-up lift
Tilting device
YELLOW
YELLOW
YELLOW
Distributer valve
BLUE
RED
E
D
Hydraulic diagram
PR11-0870

HYDRAULIC DIAGRAM FOR ES 3500 AND ES 2500

See the opposite page.

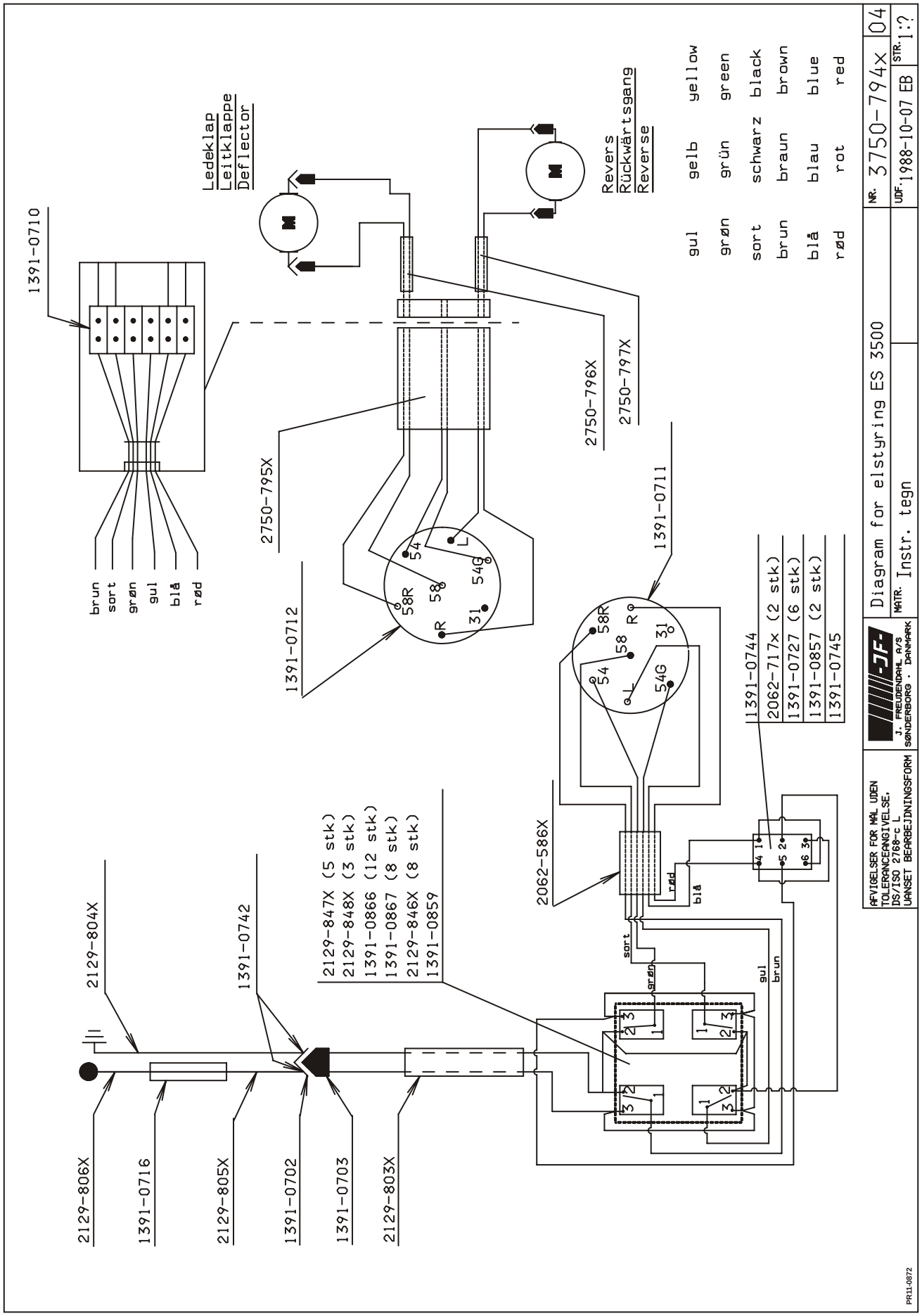

Ledeklap
Leitklappe
Deflector
Revers
Rückwärtsgang
Reverse
1391-0710
2750-795X
2750-796X
2750-797X
1391-0712
1391-0711
1391-0744
2062-717x (2 stk.)
1391-0727 (6 stk.)
1391-0857 (2 stk.)
1391-0745
2062-586X
2129-847X (5 stk.)
2129-848X (3 stk.)
1391-0866 (12 stk.)
1391-0867 (8 stk.)
2129-846X (8 stk.)
1391-0859
2129-804X
1391-0742
2129-806X
1391-0716
2129-805X
1391-0702
1391-0703
2129-803X
brun sort grøn gul blå rød
gul grøn sort brun blå rød
gelb grün schwarz braun blau rot
yellow green black brown blue red
Diagram for elstyring ES 3500
Instr. tegn
3750-794x
04
1988-10-07 EB
1:?
J. FREUDENDAHL A/S
SØNDERBORG . DANMARK
AFVIGELSER FOR MÅL UDEN TOLERANCEANGIVELSE, DS/ISO 2768-c L
UANSET BEARBEJDNINGSFORM
PR11-0872

DIAGRAM FOR ELECTRIC CONTROL

See the opposite page.

WARRANTY

JF-Fabriken - J. Freudendahl A/S, 6400 Sønderborg, Denmark, hereafter called **"JF"**, grants warranty to any buyer of new JF-STOLL machines from authorized JF-STOLL 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. Nor is JF 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, wearing bars, guide shoes, stone protections, discs, rotor skirts, crimper parts, tyres, tubes, brake shoes, chain tightener parts, guards, hydraulic hoses, conveyors, vertical auger and tub, 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, chute liner 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 a 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 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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