



Order-No. 9900.01.49GB01

--	--	--	--	--	--	--	--	--

Serial-No.

Operating Instructions

Flail Mower 245-300 Profi



CONTENT

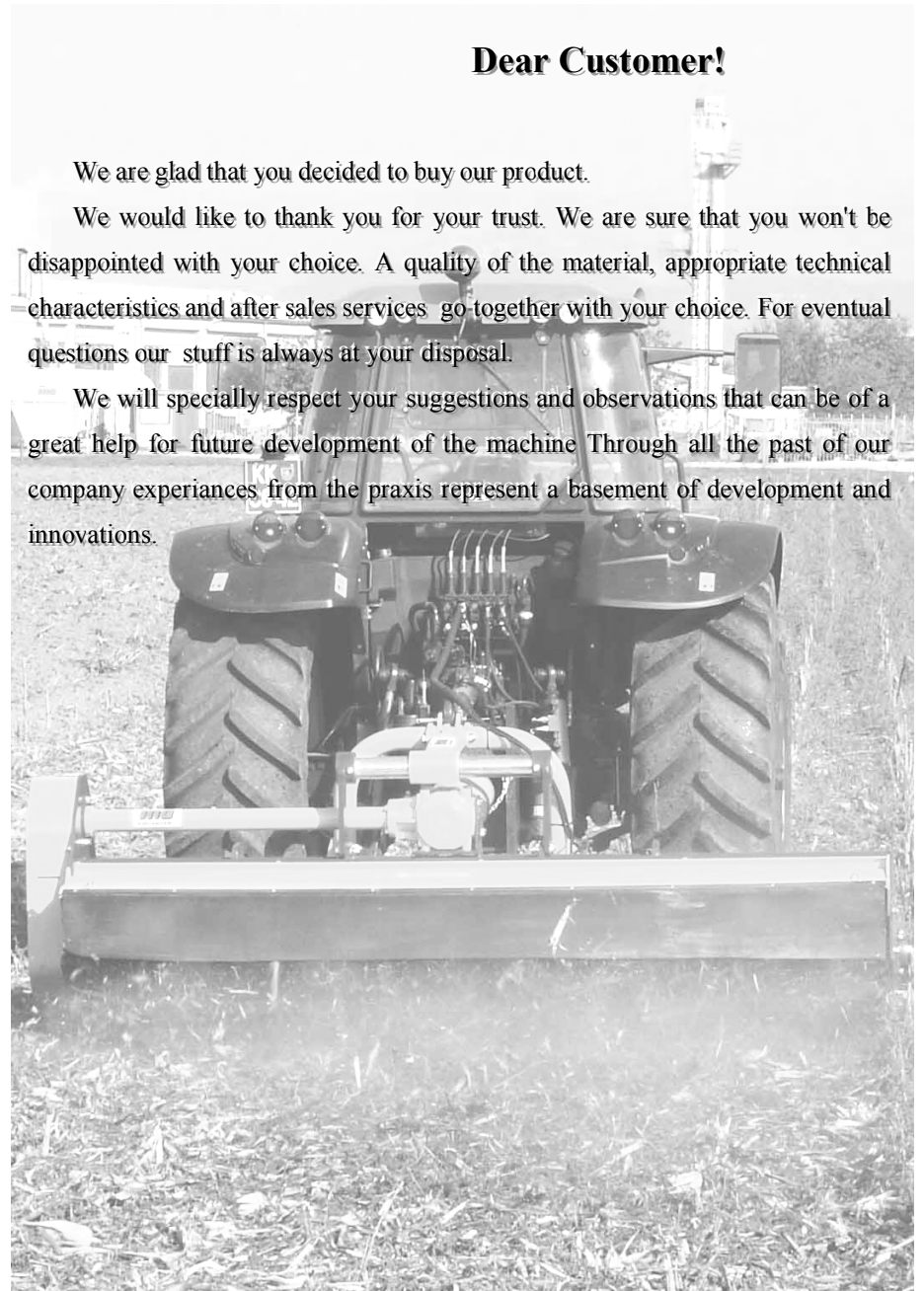
1. General information.....	4
1.1 Purpose of use.....	5
1.2 Warranty.....	5
1.3 Identification of the machine.....	6
2. Technical data.....	7
2.1 Noise.. ..	7
2.2 Technical specification	8
2.3 Optional equipment.....	8
3. Safety.....	9
3.1 General safety rules.....	9
3.2 Attachment on the tractor and transport.....	10
3.3 PTO drive.....	11
3.4 Hydraulic system.....	12
3.5 Safety rules during use, maintenance and servicing.....	13
3.6 Warning decals.....	14
3.7 List of guards.....	15
3.8 Variants.....	15
4. Description and operating of the machine.....	16
5. Transport and attachment of the machine.....	17
5.1 Transport to the customer.....	17
5.2 Attachment and detachment from the tractor.....	18
5.3 Fitting the PTO shaft.....	19
5.4 Stability of the tractor.....	20
6. Adjustment	21
6.1 Working height adjustment.....	21
6.2 Offsetting.....	22
6.3 Belt tension adjustment.....	22
7. Operating.....	23
8. After the job done.....	24
8.1 Cleaning.....	25
9. Maintenance.....	25
9.1 Oil control in the gearbox	26
9.2 Greasing	27
9.3 Plan of maintenance jobs	28
9.4 Replacement of working tools.....	29
9.5 At the end of the season	29
9.6 Demolition when out of order	29
10. Trouble shooting	30

Dear Customer!

We are glad that you decided to buy our product.

We would like to thank you for your trust. We are sure that you won't be disappointed with your choice. A quality of the material, appropriate technical characteristics and after sales services go together with your choice. For eventual questions our stuff is always at your disposal.

We will specially respect your suggestions and observations that can be of a great help for future development of the machine Through all the past of our company experiances from the praxis represent a basement of development and innovations.



1. General information

This operation and maintenance manual is intended to the operator. It consists of operating instructions, maintenance part and spare parts list for the machine.

It is mandatory to follow these instructions in order to prevent events which could endanger the operator's, other people's and animal's safety, apart from the correct functioning of the machine. In case of doubt do not experiment, call Rabe after-sales service instead, or a specialized Rabe dealer.



It is mandatory to read these instructions to understand the operating of the machine!



In the case of re-sale of the machine it is necessary to give these instructions to the new owner!

A meaning of decals in this book



Very important information!



Technical warning!



Safety warning!

1.1 Purpose of use

Flail Mower Profi is a heavy duty professional machine, purposed for use on large agriculture and green areas, for mulching maize and other crop residues, grass and bushes on green and abandoned areas. This machine is very rigid and made for use in hard working conditions.

1.2 Warranty

Warranty period for the machine is 24 months.

This machine is in conformity with the following provisions of law:

- Directive Machine 89/392/CEE and following additions: 91/368/CEE, 93/44/CEE and 93/68/CEE
- Regulations UNI EN 292/1 and 292/2 (Machinery Safety)
- Regulation SIST EN 745 (Rotary and flail mowers safety)



A producer can ensure normal operating of the machine only with use of original spare parts!



Rabe is not responsible for any damage or injuries, if the user doesn't consider the rules in this book!



Rabe is not responsible for any damage or injuries due to improper use of the machine!

After receiving the machine it is necessary to check that the machine was not injured during transport and that it is equipped with all basic and additional equipment (if ordered). A customer can claim any missing or damaged part in the period of 8 days after receiving the machine.

Rabe does not accept any responsibility in the case of:

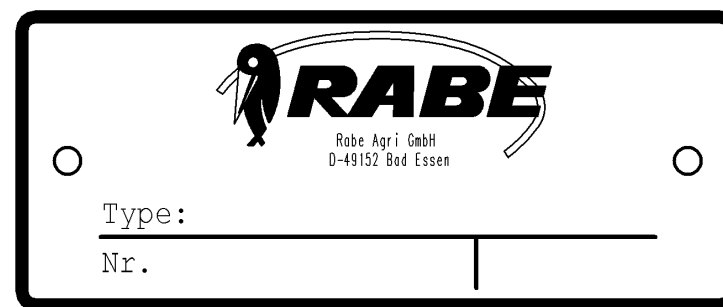
- Improper maneuvering the machine,
- Improper maintenance,
- Unauthorized repairing or modifications on the machine or use of non-genuine spare parts,

- Non-respecting these rules,
- Overloading of the machine (see Table nr.1 – limited values)

1.3 Identification of the machine

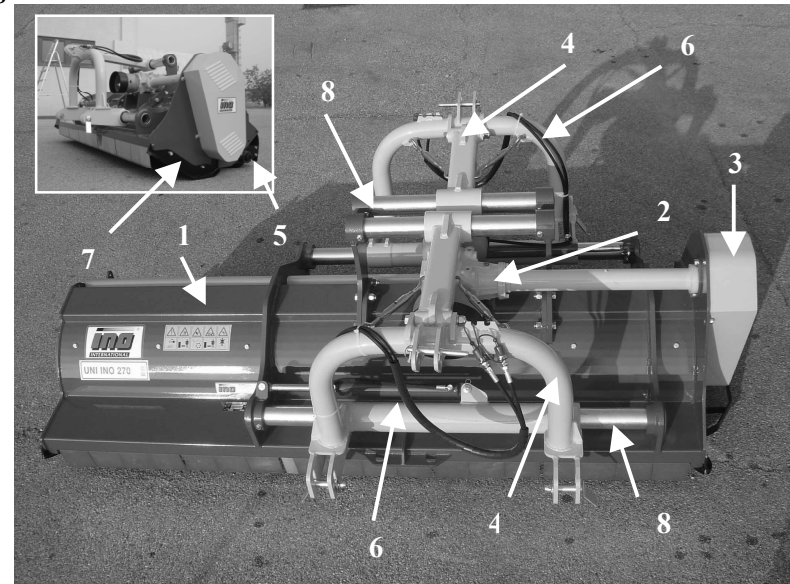
Each machine is fitted with an identification plate with the following data: producer and address, name of the machine, type, identification number and year of production.

Fig. 1



2. Technical data

Fig. 2



- | | |
|---------------|-----------------------|
| 1. frame | 5. rear roller |
| 2. gearbox | 6. hydraulic cylinder |
| 3. belt drive | 7. skids |
| 4. linkage | 8. sliding tubes |

2.1 Noise

The sound level of this machine, as measured at the operator's ear, ranges from 70 to 90 dB when the rear window of tractor is open. We recommend the use of ear protectors

2.2 Optional equipment

According to the working requirements we offer different optional equipment:

- Y blades
- Hydraulic rear gate
- Combi linkage
- Double linkage
- Wheels instead of rear roller

2.3 Technical specification

Table. 1: *Technical data*

Type	Unit	Profi 245	Profi 270	Profi 300
Working width	cm	245	270	300
Min.tractor power	HP	65-80	75-100	90-130
RPM	min ⁻¹	540/1000	540/1000	540/1000
Y-blades	nr.	72	84	96
Hammer	nr.	24	28	32
Weight	kg	880	950	1020
Offsetting	cm	53	53	53
Linkage	cat.	II, III	II, III	II, III
Total width	cm	275	300	330

3. Safety



3.1 General safety rules

1. Before starting, checks on the tractor and the machine must be carried out as regards: functionality, road safety, accident prevention rules.
2. Together with the operating and maintenance rules for the machine it is necessary to consider general health and security rules and warnings.
3. Before starting it is mandatory to know everything regarding the equipment and operating of the machine. Reading instructions among operating is too late.
4. Security and warning decals on the machine are very important. Respect them always.
5. Even when using the machine correctly, stones or other objects may be thrown on a long distance. Therefore nobody must stand within the danger area. Special attention must be paid when working near roads or buildings.
6. Use tractor with the cabin.
7. Whenever using public roads, respect traffic rules.
8. Never wear loose or fluttering clothes.
9. Keep the machine clean to avoid fire danger.
10. Before starting check the surrounding area for the likely presence of children and/or animals.
11. Never carry passengers on the machine.

12. Never overload the machine and the tractor. Use the ballast if necessary.
13. Start the machine only if all guards of the machine are fit on proper places .
14. It is forbidden to stand in the range of operating of the machine.
15. Do not enter the working zone of the PTO shaft. It is dangerous to approach the rotating parts of the machine.
16. Keep a safety distance from drive parts outside of the machine (PTO shaft, hydraulic pipes).
17. Before leaving the tractor with the machine attached disconnect the tractor, put the machine steadily on the ground (with the hydraulic lift), apply the hand brake and if the ground is steeply sloping, wedge the tractor. Take out the starting key.
18. Do not enter the zone between the tractor and the machine. It is strongly forbidden to be in this zone if the tractor is not properly disconnected, hand brake applied and starting key taken out.



3.2 Attachment on the tractor and transport

1. Before attaching the machine on or detaching it of the tractor be sure that hydraulic lift system is in a neutral position.
2. check that a category of 3-point linkage on the tractor corresponds to that one on the machine.
3. Be careful! There is a danger of injuries when working near or with 3-point linkage.
4. It is forbidden to be in the zone between the tractor and the machine while working with the hydraulics.

5. Put the 3-point linkage into the position that moving of the machine during transport is not possible.
6. During transport secure the lever of hydraulic lift to avoid any unplanned moving the machine.
7. Never leave the tractor cab when the tractor is working.
8. Adjust driving speed to the road conditions.



3.3 PTO drive

1. Use only PTO shafts with all guards, as directed by the producer.
2. All guards on PTO shaft must be in good order .
3. Take care that all guards on the PTO shaft are in proper position during transport or operating. Respect the producer's instructions.
4. The PTO shaft must be assembled or diasssembled only with the engine stopped and the starting key removed.
5. The guards of the PTO shaft must be fixed to the machine and to the tractor with chains, to prevent rotation.
6. Before starting always check that the speed and the rotational direction correspond to those on the machine.
7. At some tractors a number of rotations depends on the speed and a direction of rotating depends on the direction of driving. Take care about that.
8. Before starting the PTO shaft be sure, that noone is in the danger area.
9. Never try to start the PTO shaft when the tractor engine is disconnected.

10. It is forbidden to be in the zone of drive axle exit, when it is engaged.
11. After the drive is disconnected wait that the drive axle stops to rotate completely. Never approach before it stops.
12. Never carry out maintenance of a machine or tractor whilst the engine is running. The engine should be switched off and the key removed.
13. If the PTO shaft is damaged, immediately stop with any operating.



3.4 Hydraulic system

1. Take care! Hydraulics is under very high pressure.
2. At connecting the pipes on the tractor check that the pressure is not too low.
3. We recommend that an official service tests the pipes before operating and than at least ones per year. Damaged or worn pipes should be replaced immediately with others of the same specification.
4. at checking pipes it is necessary to wear protection clothes and gloves to avoid injuries.
5. The oil under high pressure may sweep into the skin causing serious infections. In this case contact a doctor immediately.
6. Before working on the hydraulic system lower the machine, take pressure out and stop the tractor.
7. Approximate using period of the pipes is 6 years. After that the pipes should be replaced to avoid any damage.

8. Used oils and greases must be stored and disposed of according to antipollution rules.



3.5 Safety rules during use, maintenance and servicing

1. Never start or continue to work with the machine if the tractor or the drive axle are engaged
2. Always remove the starting key after you stopped the tractor.
3. Periodically check that bolts and nuts are tighten properly.
4. At maintaining it is sometimes necessary to lift the machine. It is mandatory to put under the machine an appropriate support to avoid falling the machine at eventual damage on hydraulics.
5. Use the gloves and appropriate tools at changing sharp parts of the machine to avoid injuries.
6. Used oils and greases should be removed according to the rules.
7. Always disconnect electric cables on the tractor before any welding or other operation when using electricity is necessary.
8. Only original spare parts should be installed

3.6 Warning decals



1. Always take off previously the machine of the tractor and read the instructions carefully before starting servicing and or lubrication operations.



2. Keep at a safety distance from the machine to avoid the risk of projection of objects.



3. Never remove the guards while the parts of the machine are moving. It is dangerous to injure the hands.



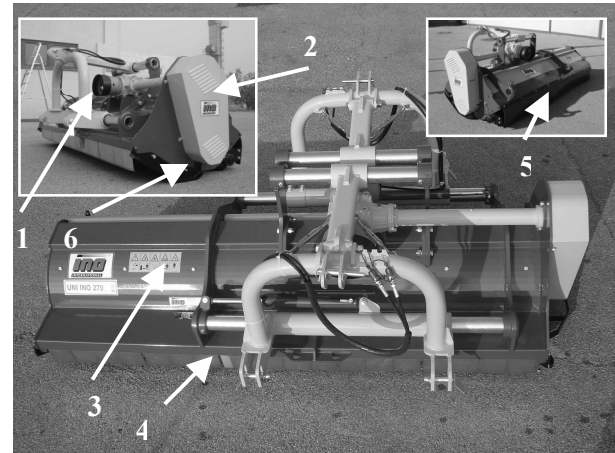
4. Keep at a safety distance from the machine to avoid the risk of cutting the feet.



5. It is forbidden to mount on the machine because of the risk of fall!

3.7 List of guards

Fig. 3



- | | |
|-------------------------|-----------------|
| 1. PTO shaft shield PVC | 4. flap guard |
| 2. belt shield | 5. rubber guard |
| 3. warning decals | 6. side guard |

3.8 Variants

As a standard model machine is rear mounted. As an option we can offer front mounted (*Fig. 4*), rear and front – combi mounted machine (*Fig. 5*) and combi mounted with double linkage (*Fig. 6*).

Fig. 4



Fig. 5

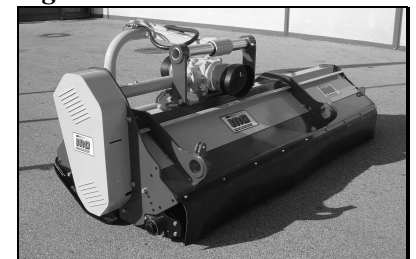
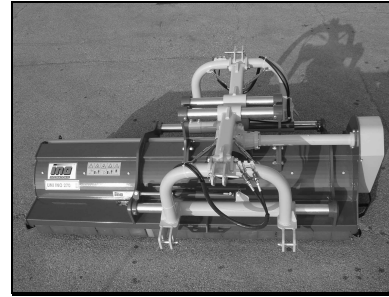


Fig. 6



4. Description and operating of the machine

The machine is equipped with hammers (Fig.8) on the rotor shaft or with y-blades (Fig.7) as an option. Hammers are appropriate for more hard work, for material with diameter till 5 cm. Y-blades are used for material with diameter max. 3 cm. While rotating working tools cut the material and lift it under the top of the frame. Falling material is again cut several times by rotating hammers (or Y-blades). With open rear gate we can reach faster working speed. Material does not fall again on rotating hammers, it is ejected out through open gate.



Maximal thickness of the material depends on the sort and hardness of the wood. Up-mentioned diameters are valid for the fresh wood only.

Fig. 7

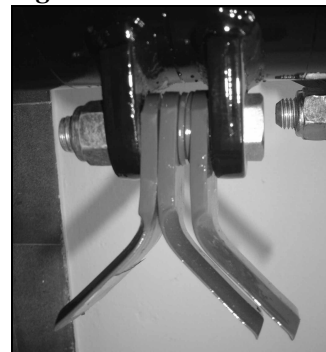


Fig. 8

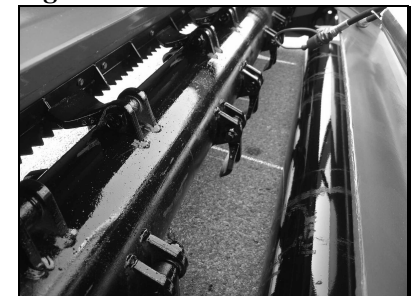


Fig. 9

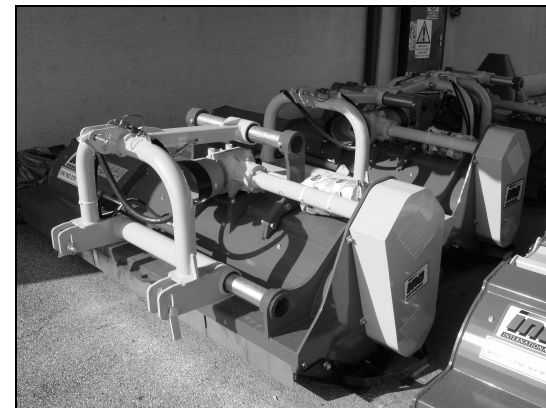


5. Transport and attachment of the machine

5.1 Transport to the customer

Unload the machine with special care to avoid any damage. Check that all nuts and bolts are fixed and tightened. Specially check the bolts and nuts for the working blades.

Fig. 10



5.2 Attachment and detachment from the tractor

Before any operation check:

- That the machine is in good condition,
- That all guards are on proper places and in good condition,
- That working blades are complete and undamaged,
- That all greasing points are greased well and that in gearbox is oil enough,
- Appropriate tensioned belts,
- That rpm and direction of rotation on the drive axle correspond to those on the machine.

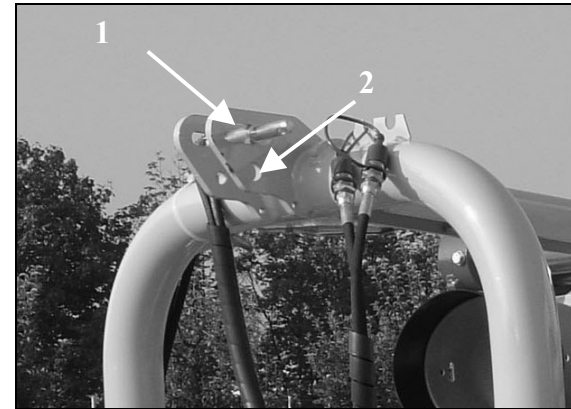
To attach the machine to the tractor, bring the tractor lower lines near the machine, to the points corresponding to the pins. Insert the pins and secure them with the spring clips. Fit the top link, raise the machine to a perpendicular position with the ground. Adjust the two tractor lower linkage stabilizers thus fixing the machine to the tractor in a central position. Connect the hydraulic cylinders and check if it works.



3-point hitch of the machine must be in a simetrical position with the tractor.

Top linkage point has two working modes: floating (Fig. 11/1) and fixed linkage (Fig. 11/2). Use floating position whenever working on hilly, uneven terrain to avoid damaging the machine or linkage.

Fig. 11



It is mandatory to use floating linkage on hilly or sloping terrain!

5.3 Fitting the PTO shaft

Attach the machine on the tractor. Split the tubes into both parts and put one part on the tractor and another on the machine. At the machine laying on the ground, minimum overlapping of the tubes mustn't be less than 1/3 of total length. Cut too long part of the tube and clean the edges. Cut on the proper length also the guard as on fig. 13. Measure the length when the PTO shaft is in horizontal position. Grease before putting them together.



Too long PTO shaft can seriously damage tractor or flail mower.



Never put PTO shaft on the tractor without all guards and chains fitted properly.

Fig. 12: Appropriate length of PTO shaft at the machine on the ground

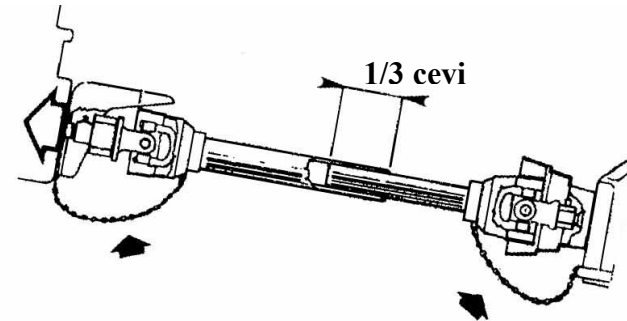
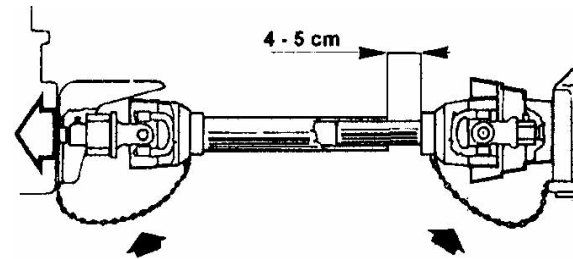


Fig. 13: Appropriate length of the guard at machine lifted.

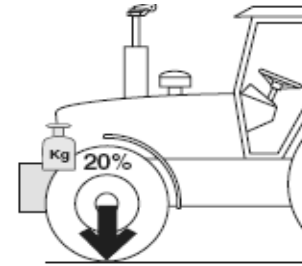


5.4 Stability of the tractor



At attachment of the machine on the tractor always take care about allowed weight of the attachment and axle load. First axle of the tractor should always be loaded with min.20% of the weight of the tractor itself. This is very important specially on this machine because of its distance between the tractor and working part of the machine!

Fig. 14



6. Adjustment

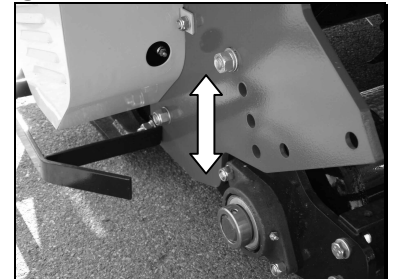
6.1 Working height adjustment

Height of cut depends on working conditions and volume of the material. The height of cut can be regulated with the hydraulic system on the tractor or/and with adjusted rear roller of the machine (*Fig. 16*). The min. height of cut should be between 1-3 cm. The machine always run on the rear roller and not on the skids.

Fig. 15



Fig. 16



Working tools never touch the ground. The skids are only the protection against injures. Normally, they do not touch the ground during work.

6.2 Offsetting

The machine has in standard equipment a hydraulic offsetting (*Fig.17*). Maximum offsetting is 53 cm.

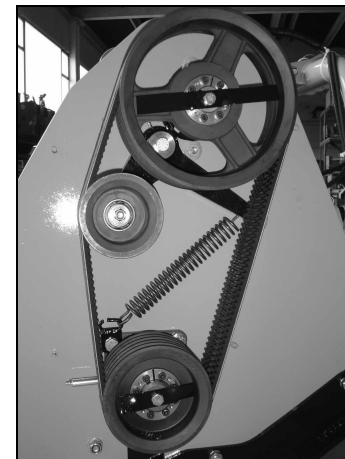
Fig. 17



6.3 Belt tension adjustment

Appropriate belt tension is one of conditions for optimal operating of the machine and for long lasting of the belts them selves.

Fig. 18





Tension the belts only when tractor is disconnected and starting key taken out.



Appropriate belt tension is achieved when at pressing on the belts with the force of 100 N (i.e. 10 kg), we reach a deviation of the belt 1,5 cm!

7. Operating



Before starting check the terrain first for some stones, wood and other.



If there is no other sign, max rpm of PTO shaft is 540 rpm.

Fig. 19



Working speed depends on working conditions and on the material cut. Optimal speed is between 3-8 km/h.

Fig. 20



During reverse movement lift the machine off the ground to avoid damaging it. (Fig. 20)!



During turning lift the machine.

8. After the job done

After the job done disconnect the PTO shaft, lift the machine and transport it onto the appropriate place.



During transport reduce the speed, especially on bumpy roads. The weight of the machine may render driving difficult and damage the machine itself. During transport the machine must be always in the central position.



PTO shaft must be disconnected during transport.



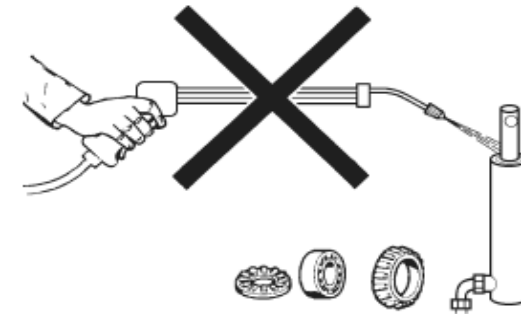
At disconnecting the machine respect the warning rules for connecting the machine.

Put the machine on the flat not soft ground. To avoid a corrosion store the machine on a dry place.

8.1 Cleaning

To avoid any corrosion clean the machine after each working day, especially working tools, bearings etc. Be careful to avoid damaging hydraulic pipes, bearings and colour.

Fig. 21



9. Maintenance



All maintenance, cleaning and repair operations must be carried out with the machine firmly lowered to the ground and detached from the tractor, or with disconnected PTO, engine off and starting key out.



A time of maintenance is defined according to the normal use of the machine. If the machine is used in very hard conditions, the time between maintenance operations must be shorter.



Take care that grease nipples on the machine are always clean.

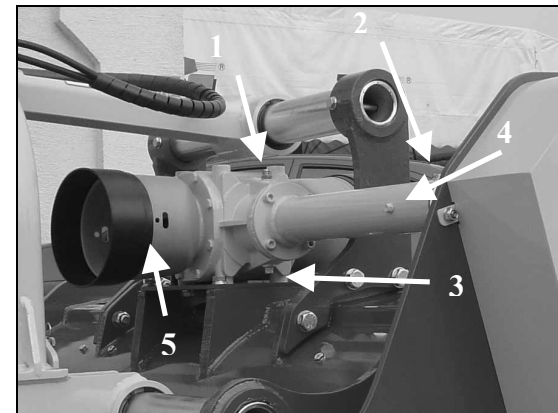


After each maintenance operation check that all guards are fitted on the proper place.

9.1 Oil control in gearbox

Use always the same type of oil, SAE 90. To change the oil first unscrew the plug under the gearbox (*Fig.22/3*) and let the oil off. Use the hole on the top of gearbox for filling in (*Fig. 22/1*) and on the top of the half axle (*Fig.22/2*). For pouring in use a funnel. Pour in the oil till the level of the control plug on the half axle (*Fig.22/4*) and on the head of the gearbox (*Fig.22/5*).The control plug on the head of the gearbox is placed under the PVC shield (*Fig.22/5*). For Profi 245 and 270 we need 4,2l of oil and 4,5l of oil for Profi 300 (longer half-axle).

Fig. 22



9.2 Greasing



Before any greasing operation read these instructions first.

The machine has the following greasing points:

- Left bearing on the rear roller (*Fig. 23/2*)
- Right bearing on the rear roller (*Fig. 24/3*)
- Left bearing on the rotor shaft (*Fig. 23/1*)
- Right bearing on the rotor shaft (*Fig. 24/4*)
- Bearing on the strain pulley (*Fig. 25*)

Fig. 23

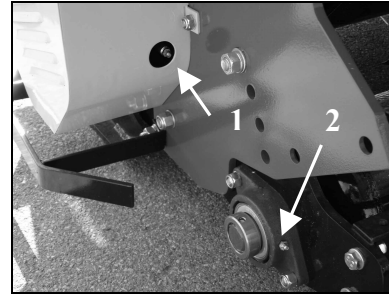


Fig. 24

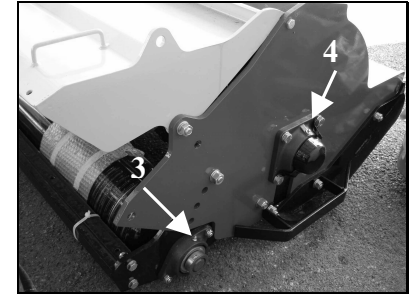
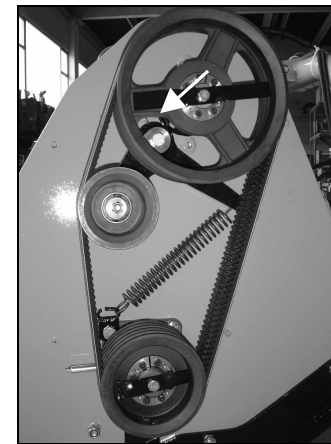


Fig. 25





At greasing use the gloves. After greasing always wash your hands.



Use type LIS 3 for greasing.

9.3 Plan of maintenance jobs

1. After first two hours of work always:
 - Check the belt tension,
 - Check if all bolts and taper locks are tightened enough

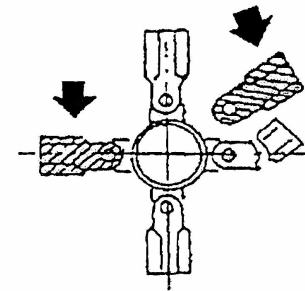
Do the same also after each belt changing.

2. After every 8 hours always check:
 - If the nuts are tightened enough,
 - A wear and condition of working tools,
 - Belts and taper locks,
 - A condition of safe guards,
 - Oil level in the gearbox,
 - That any foreign parts are not stuck on the rotor shaft,
 - That the frame and the 3-point hitch are in good condition,
 - That all parts are greased well.
3. On every 100 hours we recommend to:
 - Check and grease the PTO shaft
4. On every 12 months we recommend to:
 - Change the oil in the gearbox and check the belts tension.

9.4 Replacement of working tools

Immediately after you notice that working tools are damaged, change them. If it is necessary to change only few blades, always change the broken or worn one and the one diametrically opposite in order to maintain the balance. If the rotor shaft is vibrating after changing the blades, immediately stop the machine. The machine must be balanced before any work.

Fig. 26



9.5 At the end of the season

At the end of the season we recommend to clean the complete machine, change eventual broken or worn parts, tighten the bolts, the belts, grease the parts and oil the parts with damaged colour. Put the machine on a dry and flat ground.

9.6 Demolition when out of order

If the machine is out of order, all its parts that might cause dangers have to be made inoffensive. Materials, forming the machine that have to undergo a differentiated division, are:

- a. steel
- b. mineral oil
- c. rubber
- d. plastic

All the above mentioned operations and the disposal have to be carried out in total respect of the present provisions of law on the subject.

10. Trouble shooting

Trouble	Causes	Remedies
Irregular cut	Worn, bent or broken flails	Replace the flails
	Too low RPM	Increase RPM
	Machine is not in the level with the ground	Correct mounting on the tractor
	Clogged material due to excessive working speed	Reduce the working speed
Noise	Loosen bolts	Tighten the bolts
	Damaged parts of the machine	Find damages and repair the machine
Noise in the gearbox	Lack of oil	Fill till level
	Worn gears	Replace
	Worn bearings	Replace
Vibrations	Broken or worn flails	Replace
	Unbalanced rotor	Balance or replace
	Worn rotor bearings	Replace
Excessive backlash in joints	Worn pins	Replace
Damaged bearings	Dirty or ungreased bearings	Clean and grease
	Violant impact on the ground when the machine is lowered	Lower it gently
Belts overheating	Belts slipping	Tension the belts
	Working flails are touching the ground	Adjust the height of cut
	Too fast working speed	Reduce the speed