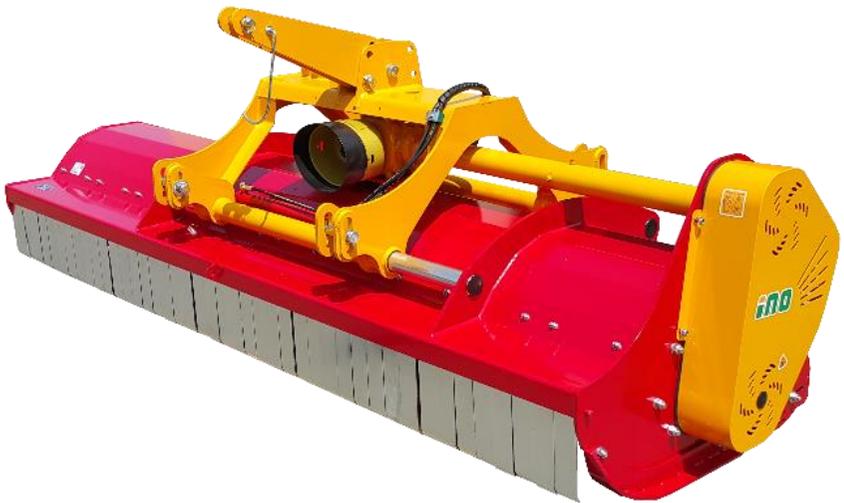




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FLAIL MOWER DOMINATOR OPERATING INSTRUCTIONS



IT IS MANDATORY TO READ AND FOLLOW THESE INSTRUCTIONS
BEFORE CARRYING OUT ANY OPERATION!

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Dear Customer!

We are grateful 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 staff 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 experiences from the praxis represent a basement of development and innovations.

INO Brežice d.o.o.

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 INO after-sales service instead, or a specialized INO 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!

Purpose of use

Flail mower DOMINATOR 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.

Warranty

Warranty period for the machine is 24 months.

WE DECLARE WITH FULL RESPONSIBILITY THAT THIS TYPE OF THE PRODUCT FULFILLS ALL THE RELEVANT PROVISIONS OF THE FOLLOWING DIRECTIVES:

***DIRECTIVE MACHINE 2006/42/EC
AND FOLLOWING ADDITIONS:
91/368/CEE, 93/44/CEE, 93/68/CEE***

HARMONISED STANDARDS APPLIED IN ORDER TO VERIFY COMPLIANCE WITH DIRECTIVES:

SIST-EN 292-1, SIST-EN 292-2, SIST EN ISO 4254-12:2012



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



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



INO 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 has not been 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.

INO 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)

Identification of the machine

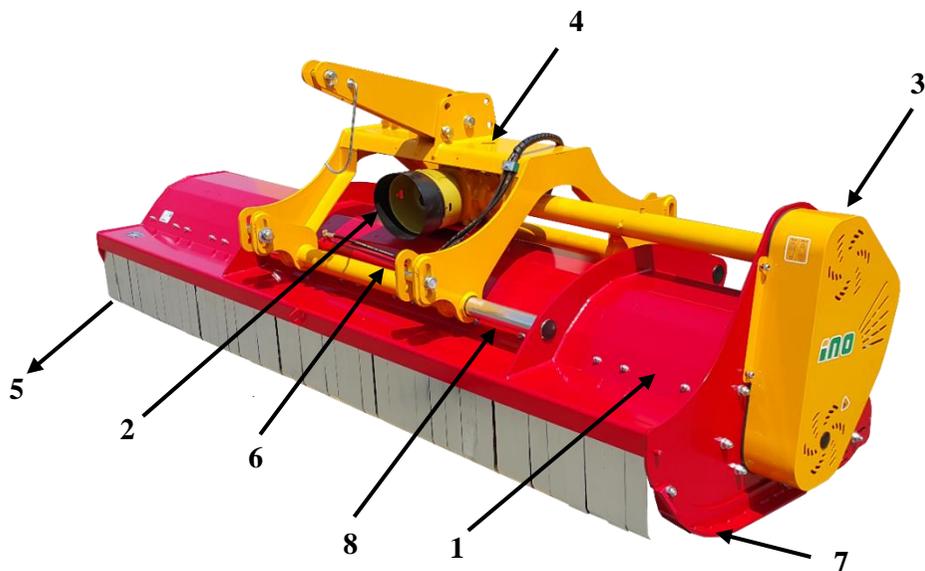
Each machine is fitted with an identification plate with the following data: producer and address, CE sign, name of the machine, type, weight, identification number and year of production.

Fig. 1



2. Technical data

Fig. 2



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

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

Optional equipment

According to the working requirements we recommend the following additional equipment:

- Y-blades
- Double skin
- Reversible gearbox
- Gearbox 540 rpm
- INO VIBRATION CONTROL

Technical specification

Table. 1: Technical data

Type	Unit	DOMINATOR 250	DOMINATOR 270	DOMINATOR 300
Working width	cm	244	277	312
Min.tract.power	HP	65	75	90
Max.tract.power	HP	110	110	130
RPM	min ⁻¹	540/1000	540/1000	540/1000
Y blades	nr.	84	96	108
Hammers	nr.	28	32	36
Weight	kg	971	1023	1093
Offsetting	cm	50	50	50
Linkage	cat.	II	II	II
Total width	cm	267	300	333

3. Safety



General safety rules

1. Before starting the machine, functionality, road safety and accident prevention rules must be checked.
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 when 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 accidentally fly a long distance. Therefore everybody must stand out of 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 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.



Attachment to the tractor and transport

1. Before attaching the machine 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 makes the moving of the machine impossible.
6. During transport secure the lever of hydraulic lift to avoid any unplanned moving of the machine.
7. Never leave the tractor cab when the tractor is working.
8. Adjust driving speed to the road conditions.



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 disassembled 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. With 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 no one 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 while 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.



Hydraulic system

1. Take care! Hydraulics is under very high pressure.
2. When 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 then at least once per year. Damaged or worn outpipes should be replaced immediately with others of the same specification.
4. When 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 according to antipollution rules.
- 9.



Safety rules during use, maintenance and servicing

1. Never start or continue to work with the machine if the tractor or the drive axles are engaged
2. Always remove the starting key after you stopped the tractor.
3. Periodically check that bolts and nuts are tighten properly.
4. When 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

Warning decals



1. Always turn off 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 flying objects.



3. Never remove the guards while the parts of the machine are moving. It can injure the hands.



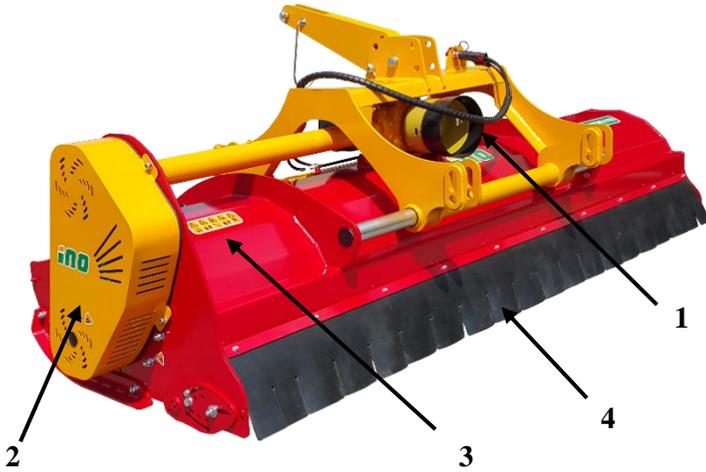
4. Keep at a safety distance from the machine to avoid the risk of injuring the feet.



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

List of guards

Fig. 3



- 1. PTO shaft shield PVC
- 2. belt shield
- 3. warning decals

- 4. rubber guard

4. Description and operating of the machine

The machine is equipped with hammers on the rotor shaft. Hammers are used for material with diameter with diameter \varnothing 6 cm. Optional working tools Y-blades are used for cutting material with diameter \varnothing 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.



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. 4



Fig. 5



5. Transport and attachment of the machine

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.

Attachment and detachment from the tractor

Before any operation check:

- That the machine is in good condition,
- That all guards are in 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 enough oil,
- Appropriate tensioned belts,
- That rpm and direction of rotation on the drive axle correspond to those on the machine.

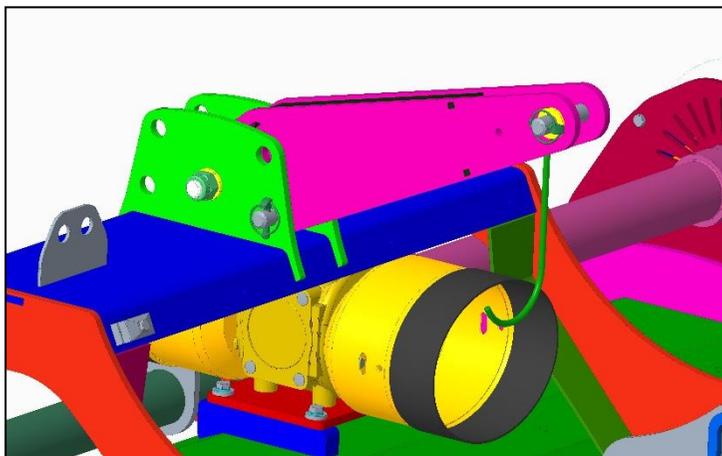
When you attach the machine to the tractor, bring the tractor lower lines near the machine, to the points corresponding to the pins. Insert the pins and secure them with the spring clips. Fit the top link, raise the machine to a perpendicular position to the ground. Adjust the two tractor lower linkage 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 and fixed linkage. Use floating position whenever working on hilly, uneven terrain to avoid damaging the machine or linkage. To get floating position just remove the pin, fixing the top linkage bracket, on the opposite site of the linkage bracket (see Fig.6).

Fig 6



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



Before any change of attachment (front, rear) it is mandatory to check that rpm and direction of rotation on the drive axle correspond to those on the machine.

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

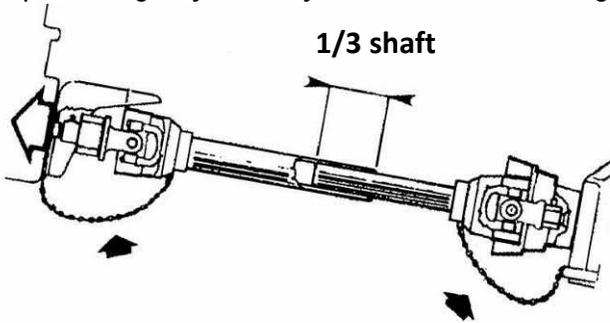
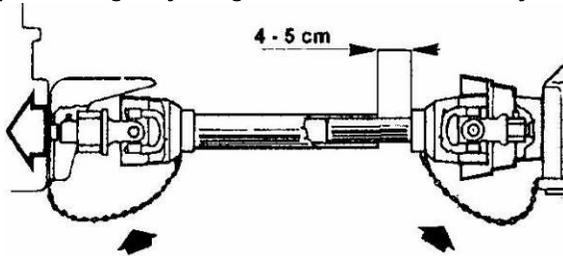


Fig. 8: Appropriate length of the guard when machine is lifted.

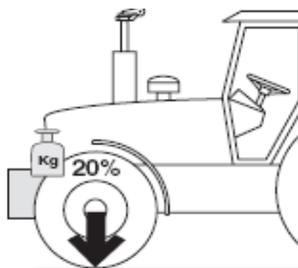


Stability of the tractor



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. 9



6. Adjustment

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. 13*). The min. height of cut should be between 1-3 cm. The machine always run on the rear roller and not on the skids.



Working tools should never touch the ground. The skids are only the protection against injures.

Support roller adjustment

You can set the roller in two positions depending how you want to disperse the material and working conditions and volume of the material.

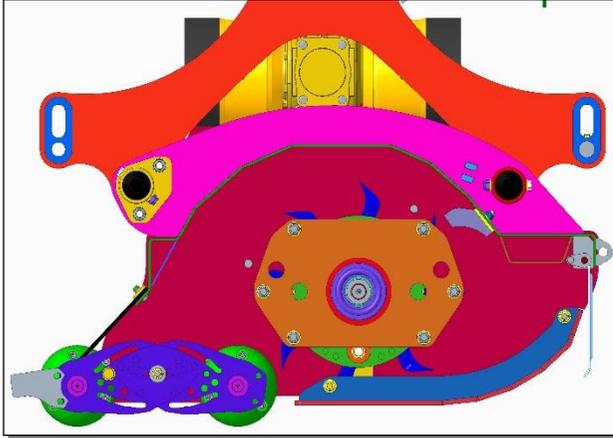


Fig. 12

Roller setup

If you want to change the position of the roller you have to loosen the bolt (FIG. 13/1) than you have to unscrew the two bolts (FIG. 13/2) (FIG. 13/3) . Than you can move the roller with the console to the new position and you screw the bolts (FIG. 13/2) (FIG. 13/3) in the new position.

Fig. 13

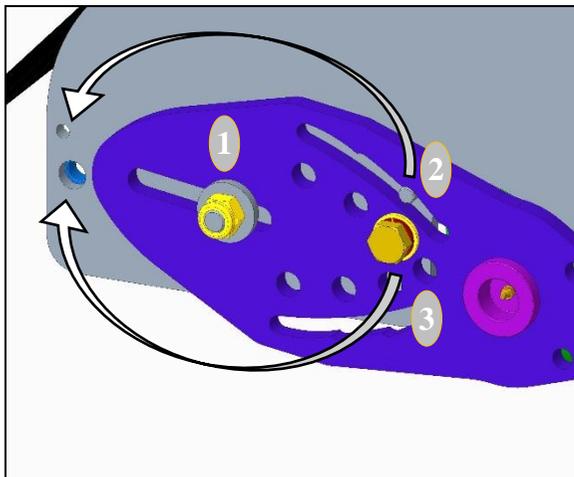
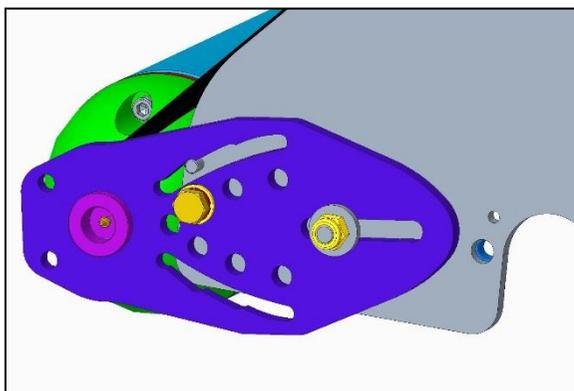


Fig. 14



The roller after the movement.

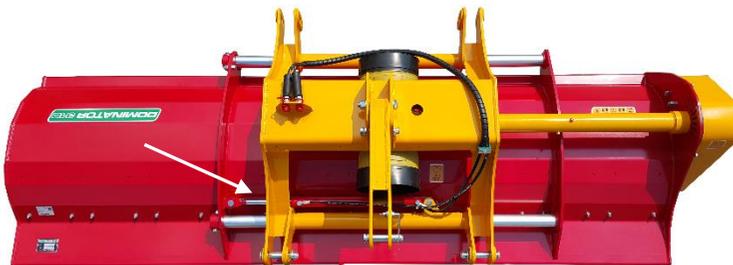
The height of cut can be regulated with the hydraulic system on the tractor or/and with adjusted rear roller of the machine (*Fig. 13*). The min. height of cut should be between 1-3 cm. The machine always run on the rear roller and not on the skids.



Offsetting

The machine has a hydraulic offsetting in standard equipment (*Fig.14*). Maximum offsetting is 50 cm.

Fig. 15



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. This flail mower is equipped with automatic belt tensioner for this reason.

Fig. 16



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

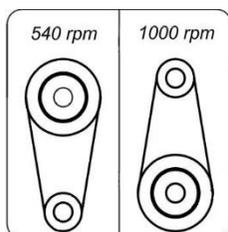


Appropriate belt tension is achieved when the automatic belt tensioner is at **20-22°**. The angle is determined with the position of the indicator on the automatic belt tensioner.



Before operating always check the PTO rotation speed of the tractor and the gearbox speed. The number of rotation can be changed with the changing the positions of the pulleys. FIG.17

Fig. 17



7. Operating



Before operating always check for hard objects like stones, rocks, wood.



Start PTO shaft at low rpm and slowly increase rpm on working rotations.



In the case of injury on the rotor shaft serious vibrations can appear and consequently a damage or cracking of the welding parts on the frame can be caused. In this case it is necessary to stop the machine immediately, stop PTO shaft, check the rotor shaft and change missing or damaged parts. If the machine is still vibrating it is necessary to balance it. Contact service dep.immediately.



When working with flail mower at lower rpm as defined working rotations, working tools can damage the rotor shaft.



If there is no other sign, max rpm of PTO shaft is 1000 rpm.

Fig. 18

Working speed depends on working conditions and on the material cut. Optimal speed is between 3-8 km/h. In the case of much more dense grass or other material, it is obligatory to reduce the speed to avoid slipping of the belts.

Fig. 19

During reverse movement lift the machine off the ground to avoid damaging it. (Fig. 17)!



During turning lift the machine.

8. After the job is 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.



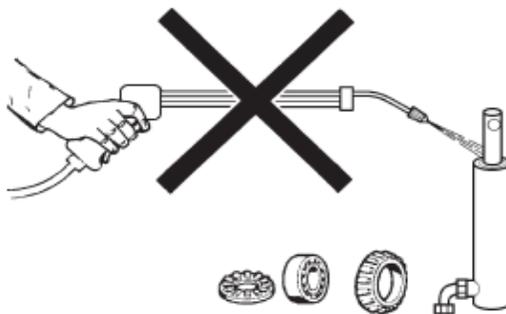
At disconnecting the machine respect the warning rules for attaching the machine.

Store the machine on a dry and flat ground to avoid any damage or corrosion.

Cleaning

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

Fig. 20



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.



The 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.

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.21/1*) and let the oil off. Use the hole on the top of gearbox for filling in (*Fig. 21/2*) and on the top of the half axle (*Fig.22/1*). For pouring in use a funnel. Pour in the oil till the level of the control plug on the half axle (*Fig.22/2*) and on the head of the gearbox (*Fig.21/2*).The control plug on the head of the gearbox is placed under the PVC shield (*Fig.21/3*).

Fig. 21

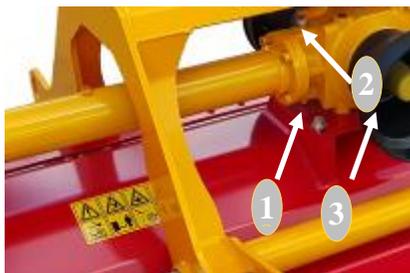
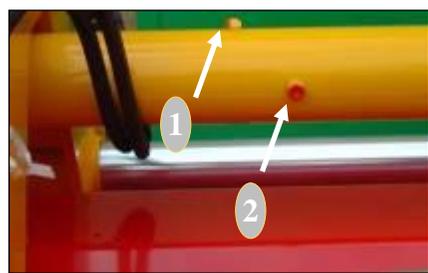


Fig. 22



Greasing



Before any greasing operation read these instructions first.

The machine has the following 3 greasing points:

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

Fig. 23

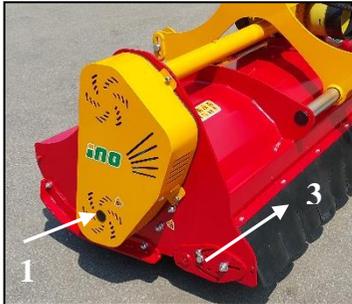
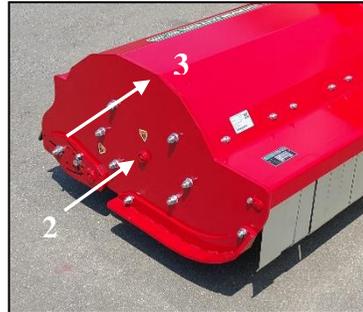


Fig.24



During greasing use gloves. After greasing always wash your hands.



Use type LIS 3 for greasing.

Plan of maintenance jobs

1. After first two hours of work always:

- Check the belt tension,
- Check that all bolts and taper locks are tightened enough

Do the same also after each belt changing.

2. After every 8 hours always check:

- That 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. Every 100 hours we recommend to:

- Check and grease the PTO shaft

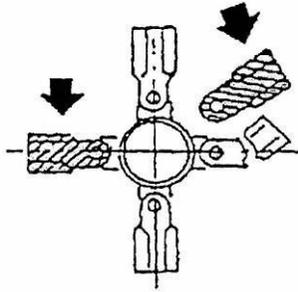
4. Every 12 months we recommend to:

- Change the oil in the gearbox and check the belts tension.

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. 25



At the end of the season

At the end of the season we recommend to clean the complete machine, change the 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.

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

